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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	304052.0001C1
First Named Inventor	Seung Woo OH
Title	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
Priority Mail Express® Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [✔] **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. [ ] **Applicant asserts small entity status.** See 37 CFR 1.27
3. [ ] **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. [✔] **Specification** [*Total Pages* 36] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. [✔] **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 14]
6. **Inventor's Oath or Declaration** [*Total Pages* 1] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. [✔] Newly executed (original or copy)
   b. [ ] A copy from a prior application (37 CFR 1.63(d))
7. [✔] **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   [ ] Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
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ACCOMPANYING APPLICATION PAPERS

10. [ ] **Assignment Papers** (cover sheet & document(s)) Name of Assignee _____
11. [ ] **37 CFR 3.73(c) Statement** (*when there is an assignee*) [✔] **Power of Attorney**
12. [ ] **English Translation Document** (*if applicable*)
13. [✔] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    [ ] Copies of citations attached
14. [ ] **Preliminary Amendment**
15. [ ] **Return Receipt Postcard** (*MPEP § 503*) (*Should be specifically itemized*)
16. [ ] **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. [ ] **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. [ ] **Other:** _____

*__Note__: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
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METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

CROSS-REFERENCE TO RELATED APPLICATION(S)

This application is a continuation of U.S. Patent Application No. 14/921,269 filed on October 23, 2015 which claims the benefit under 35 U.S.C. §119(a) of Korean Patent Application No. 10-2015-0059086, filed on April 27, 2015, in the Korean Intellectual Property Office, the entire disclosure of which is incorporated herein by reference for all purposes.

BACKGROUND

1. Field

The following description relates to computer simulation technology that processes 2D clothing patterns and thus creates digital clothing.

2. Description of the Related Art

Current clothing simulation technology is used in various fields ranging from the fashion industry to games, animations, and movie visual effects. Also, virtual clothing is a billion-dollar market. Such a technology is to model textiles in mesh having the mass so as to simulate movements of the textiles according to the outer movements of the avatar wearing the clothes, wind, lights, etc.

In a sewing simulation method to create digital clothing by using patterns, there are segment sewing and free sewing for a method of sewing each of the different two patterns.

Segment sewing is sewing the two selected segments among the segments that are separated by dots; and free sewing is sewing two segments with the adjusted length that a user wants by freely adjusting each length of the two segments to be sewn.

More specifically, in the case of free sewing, if a user adjusts the two segments to be the same, accuracy is required when adjusting the length of another segment to be the same as the length of the first selected segment through input device e.g., mouse.

In free sewing, even when two segments having the length being different from each other are sewn together, the digital fabric, which stretches well, including the two segments may seem as being sewn with the same length in the same manner as real clothing. However, in the case of the fabric not stretching well, wrinkles may be created on the digital clothing.

Furthermore, in the case the lengths of two segments to be sewn in the free-sewing manner are set to be different, a user is required to recognize how long or short the segment selected later is, during the process of adjusting the segment selected later.

Also, when the difference between each length of the two segments to be sewn together is too large for the two segments to be sewn together, displaying a warning sign is required so as to enable a user to recognize it during the process of adjusting the segment selected later.

SUMMARY

The purpose of the present invention is to allow the user, during free sewing, to easily adjust the length of one digital pattern's line segments to match that of another's.

The purpose of the present disclosure is to, during free sewing, calculate and display the difference between each length of a selected segment on the pattern and another segment to be sewn thereto so as to perform the accurate sewing.

Another purpose of the present disclosure is to, during free sewing, recognize a user a warning sign when the difference between each length of the selected segment on the pattern and another segment to be sewn thereto is too large for the two segments to be sewn together.

In one general aspect, a method of creating digital clothing includes, wherein the method is executable by a computing device including a computing element and a storage element storing patterns and draped digital clothing: setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; setting a second selected segment; and draping the digital clothing by processing the first and second selected segments according to sewing instructions so as to create 3D digital clothing, wherein the setting of the second selected segment includes: inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point; and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

The first and second segments may be at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

The setting of the second selected segment may further include, between the inputting of the starting point and the inputting of the ending point: detecting a current cursor position; and displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

The setting of the second selected segment may further include: in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position.

The setting of the second selected segment may further include: calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

The setting of the second selected segment may further include: displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

The setting of the second selected segment may further include: in response to the difference value being greater than a reference value, displaying a warning sign.

The displaying of the warning sign may include: in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value.

Other features and aspects may be apparent from the following detailed description, the drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flowchart illustrating a method of creating digital clothing according to an exemplary embodiment.

FIG. 2 is a detailed flowchart illustrating an operation of setting a selected segment in the second seam line according to an exemplary embodiment.

FIG. 3 is a diagram illustrating an example of a method of setting a selected segment in the first seam line.

FIG. 4 is a diagram illustrating another example of setting a selected segment in the first seam line.

FIG. 5 is a diagram illustrating an example of setting a selected segment in the second seam line.

FIG. 6 is a diagram illustrating an example of displaying a candidate for an ending point.

FIG. 7 is a diagram illustrating examples of moving a cursor position, displaying a length, and displaying a difference value.

FIG. 8 is a diagram illustrating an example of displaying a difference value and displaying a warning sign.

FIG. 9 is a diagram illustrating another example of displaying a difference value and displaying a warning sign.

FIG. 10 is a diagram illustrating 2D patterns, and 3D patterns prior to the draping.

FIG. 11 is a diagram illustrating 2D patterns, and 3D patterns after the draping.

FIG. 12 is a diagram illustrating various shapes of segments in the first and second seam lines.

FIG. 13 is a diagram illustrating an apparatus for creating digital clothing according to an exemplary embodiment.

Throughout the drawings and the detailed description, unless otherwise described, the same drawing reference numerals will be understood to refer to the same elements, features, and structures. The relative size and depiction of these elements may be exaggerated for clarity, illustration, and convenience.

DETAILED DESCRIPTION

The following description is provided to assist the reader in gaining a comprehensive understanding of the methods, apparatuses, and/or systems described herein. Accordingly, various changes, modifications, and equivalents of the methods, apparatuses, and/or systems described herein will be suggested to those of ordinary skill in the art. Also, descriptions of well-known functions and constructions may be omitted for increased clarity and conciseness.

Descriptions incorporated herein is omitted to enhance clarity and conciseness, and similar reference numerals are used to refer to similar elements, features, and structures throughout the drawings and the detailed description. Throughout the specification, unless

explicitly described to the contrary, the word "comprise" and variations such as "comprises" or "comprising" will be understood to imply the inclusion of stated elements but not the exclusion of any other elements. In addition, the components, devices, and units described herein indicate "a block configured to enable the systems of hardware or software to be changed or plugged in", which is, in other words, one unit or block that performs functions in hardware or software.

The proposed method of creating digital clothing and the apparatus thereof, and storage media, on which a computer program to execute the method thereof is stored, may be applied to the field of 3D simulation technology.

Digital clothing is created through a computer simulation creating program, which reflects the actual process of making clothes. For example, a clothing manufacturer draws 2D patterns of clothes and then drapes the 2D patterns on an avatar model that is to wear the clothes. The draping result is rendered, which is then shown, and then the 3D virtual clothes are output onto a screen. The avatar model and the 2D clothes patterns may be drawn by the user through a computer program or the user may select preloaded patterns for use. In the case the user wishes to draw the 2D patterns, the user may do so by using various types of graphic software, CAD programs, or the provided tool for making 2D patterns.

In a simulation method of draping digital clothing, a draping simulation method includes: 1) meshing patterns, 2) positioning patterns around an avatar, 3) determining whether the patterns intersect with the avatar, 4) generating intersection removal force, and 5) performing the draping simulation. Meshing patterns may be performed by applying the Delaunay Triangulation technique, and the draping simulation process may be performed using the method

that is disclosed in [Pascal Volino, Nadia MagnenatThalmann: Resolving surface collisions through intersection contour minimization.ACM Trans. Graph. 25(3): 1154-1159 (2006)].

FIG. 1 is a flowchart illustrating a method of creating digital clothing according to an exemplary embodiment.

In one exemplary embodiment, a method of creating digital clothing may include setting a selected segment in the first seam line (hereinafter, referred to as 'first selected segment') in 10, setting a selected segment in the second seam line (hereinafter, referred to as 'second selected segment') in 20, and draping digital clothing in 40, wherein the method may be performed by a computing device, which includes a computing element and a storage element that stores patterns and the draped digital clothing.

In one exemplary embodiment, the operation 10 includes setting a first selected segment by inputting the first selected segment, which is to be sewn on a segment in the first seam line (i.e., a segment to be sewn, which is on the first seam line; hereinafter, referred to as 'first segment')_on the pattern. The operation 10 may include inputting the first selected segment, which is one of the two lines to be sewn. A method of inputting the first selected segment is directly selecting the part to be sewn through input devices e.g., a mouse, a touch pen, a keyboard; or enabling a user to select outlines on one pattern, which are provided through a computer program so that a user can select.

In the case in which the first selected segment to be directly sewn is selected through input devices, a starting point and an ending point of the first selected segment are input and selected. In the case in which a cursor, which is output within a screen by input devices, e.g., a

mouse and a touch pen, does not exist on any segment of a pattern, a point on a segment that is the closest in distance to a current cursor position may be selected as a starting point or an ending point if the current cursor position has been selected as the starting point or the ending point. The operation 10 may be specifically described with reference to FIGS. 3 and 4.

A pattern may include at least one of a 2D pattern and a 3D pattern, wherein the 2D pattern is acquired after simulating, to a 2D object, a clothing sample that is cut for the design of 3D clothing in a computer, and wherein the 3D pattern is acquired after simulating the clothing sample to a 3D object. The 2D pattern is acquired after simulating, to a 2D object, the clothing sample that is cut for the design of the digital clothing in a computer. The 2D patterns are created according to the set attributes of textiles in terms of appearance and physical properties. To show the appearance of 2D patterns, the input of outline information of the 2D patterns is required. The outlines and vertices of the patterns may be created by using the CAD tool or various graphic programs or selecting the patterns from a storage device that includes 2D patterns according to the clothing types. The inside of the 2D patterns of which appearance is determined by the outlines may consist of meshes e.g., triangles or rectangles. The meshes may consist of springs that connect grid points to each other. The 2D patterns' material properties, wrinkling, drapability, etc., may be shown through the grid points and the springs.

The operation 20 of setting the second selected segment may include inputting a starting point in 21, inputting an ending point in 30, and setting the second selected segment in 31. The second selected segment is sewn to the first selected segment, which will be specifically described later.

In the operation 40 of draping the digital clothing, the first and second selected segments are sewn together in response to the sewing instructions so that digital clothing is created. In the operation 40 of draping the digital clothing, 2D patterns are positioned around an avatar model and are sewn to each other along the selected segments that a user has set.

In general, a term 'draping' indicates a technique of creating designs as directly draping fabric onto someone's body, or completing the designs in three dimensions as cutting darts and seams of designated design. The 'draping' in the present disclosure indicates a process of creating 3D clothes from 2D patterns through computer programs. If the selected segment to be sewn is input onto the 2D patterns, the digital clothing is created i.e., is draped onto the 3D object as the 2D patterns are combined. The operation 40 will be specifically described later with reference to FIGS. 10 and 11.

FIG. 2 is a detailed flowchart illustrating an operation of setting a second selected segment according to an exemplary embodiment.

An operation 20 of setting the second selected segment includes inputting a starting point in 21, inputting an ending point, and setting the second selected segment in 31.

The operation 21 includes inputting a starting point of a second selected segment on at least one segment in the second seam line (i.e., a segment to be sewn, which is on the second seam line; hereinafter, referred to as 'second segment'), which is to be sewn to the first selected segment. The starting point of the second selected segment may be input through input devices e.g., a mouse, a touch pen, a keyboard, etc. In the case in which a cursor, which is output within a screen by input devices, e.g., a mouse and a touch pen, does not exist on any segment on

a 2D pattern, a point on a segment that is the closest in distance to a current cursor position may be selected as a starting point if the current cursor position has been selected as the starting point. The operation 21 will be specifically described later with reference to FIG. 5.

The operation 30 includes inputting an ending point, which, upon starting the point-clicking process at the starting point located on the second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point. If the current cursor position is the closest in distance to the second segment, which includes the input starting point, among a plurality of second segments, the point that is the closest to the position, in which the point-clicking process has occurred, is input as an ending point. In the case the point-clicking process occurs when the current cursor is closer to another second segment than the second segment that includes the input starting point, the ending point may not be input. The ending point may be selected so that a length of the second selected segment is the same as that of the first selected segment, which exemplary embodiments are not limited thereto, and the length of the second selected segment may be different from the length of the first selected segment.

The operation 31 includes setting, as the second selected segment, the section of the second segment between the input starting point and the input ending point. If the length of the first selected segment is the same as the second selected segment, the digital clothing may be sewn without the wrinkles thereon. If the lengths of the first and second selected segments are not the same, wrinkles are created on the selected segment with the longer length, thus making

aesthetic effects. However, even if the lengths of the first and second selected segments are not the same, the wrinkles may not be created according to how much the fabric stretches.

The first and second segments may be at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles. In the case of the shape of the pattern being a circle, if the entire border of the circle is sewn, the first segment or the second segment may a circle. If the partial border of the circle is sewn, the first segment or the second segment may be a curved line. Various shapes of the first and second segments will be specifically described with reference to FIG. 12.

In a method of creating digital clothing, the operation 20 may further include detecting a cursor position in 22 and displaying a candidate of an ending point in 23 between the operation 21 and the operation 30.

The operation 22 includes detecting a current cursor position.

The operation 23 includes: determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment the same as the length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point, and then displaying such a candidate. As the candidate is shown, the ending point on the second selected segment on the pattern may be easily chosen to be the same as the first selected segment. The operation 23 may be specifically described later with reference to FIG. 6.

The operation 20 may further include moving a cursor position in 24 and 25. In the operations 24 and 25, the cursor is moved to the position of the determined candidate for the ending point and displayed in 25 if the difference between the current cursor position and the determined candidate for the ending point is lower than a reference value. For example, the reference value may be 15 pixels (px). The reference value may be set freely by a user. If a cursor is located around the candidate for the ending point, the cursor is moved onto the candidate for the ending point so that the second selected segment may be easily set to be the same as the first selected segment. The operations 24 and 25 will be specifically described later with reference to FIG. 7.

The operation 31 may further include displaying a length in 26. The operation 26 includes calculating at least one of: the length of the first selected segment and the length of the line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position, which is then displayed in number. The line may be consistently monitored, which is acquired by connecting the starting point, which is input along the second segment changed while the cursor is moved, to the point that is on the second segment and that is the closest in distance to the current cursor position. The operation 26 will be specifically described later with reference to FIG. 7.

The method of creating digital clothing may further include displaying the difference value in 27. The operation 27 includes displaying, in number, the difference value between the length of the first selected segment and the length of the line, which is acquired by connecting

the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position. A user may check the length of the first selected segment and the length of the line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position. Furthermore, in the operation 27, a user may check the difference value therebetween. A user may check the difference so as to set the length of the first selected segment to be the same as the length of the second selected segment. The operation 27 may be specifically described later with reference to FIGS. 7, 8, and 9.

The operation 20 may include displaying a warning sign in 28 and 29. In the operations 28 and 29, a warning sign is displayed when the difference value is greater than a reference value. In the operations 28 and 29, when the difference value is greater than a reference value, the warning sign is displayed in 29 by changing the colors of the calculated length and the difference value. If the second selected segment is shorter or longer than the first selected segment, wrinkles may be created when patterns is sewn. In other words, depending on whether the wrinkles are created or not when the first and second selected segments are sewn together, the difference value may be displayed in different color. For example, the difference value may be displayed in red. If the difference value is greater than a reference value, the warning sign may be displayed while the difference value is displayed in red. Whether wrinkles are created on the 3D pattern may depend on the sewing method, the types of fabric, etc., wherein the 3D pattern is created after the first and second selected segments are sewn together and then through the draping process. For example, knit and chiffon stretching well do not create wrinkles if the

difference between the first and second selected segments is lower than one inch. Cotton and denim not stretching well may not create wrinkles if the difference between the first and second selected segments is lower than one centimeter.

Non-volatile media may store computer programs to which a method of creating digital clothing is applied. The method of creating digital clothing may be created to be a downloadable computer program and stored in non-volatile computer-readable storage media, which, for example, includes read-only memory (ROM), random access memory (RAM), CD-ROM, magnetic tape, floppy disks, optical data storage devices, etc., and also implemented in the form of carrier wave (e.g., transmission via the internet).

FIG. 3 is a diagram illustrating an example of a method of setting a first selected segment. FIG. 3 illustrates two patterns 303 and 304 to be sewn, a starting point 302 of a first selected segment, and a cursor 301. The cursor 301, which is the position that input devices e.g., a mouse and a touch pen display on a screen, is positioned at one point 302 on the pattern 303. If the cursor 301 selects any one point on the pattern, the selected point may be a starting point of the first selected segment. In other words, if the cursor 301 selects any one point on the segment on the pattern, the selected point may be the starting point of the first selected segment, wherein the point is input through input devices. In FIG. 3, the segments to be sewn on the pattern are between each of the points on the pattern. In FIG. 3, the segments to be sewn on the pattern are set as an outline of the pattern, which exemplary embodiments are not limited thereto; and any segment, which is acquired after two points on the pattern are connected, may be set as the segment to be sewn. The cursor 301 is not positioned on the segment on any one pattern,

and if a current cursor position is chosen as the starting point, the point on the segment on the pattern that is closest in distance to the current cursor position may be selected as the starting point.

FIG. 4 is a diagram illustrating another example of an operation of setting a first selected segment. FIG. 4 illustrates: two patterns 303 and 304 to be sewn; a starting point 302 of the first selected segment; an ending point 305 of the first selected segment; a first selected segment 306; a length 308 of the first selected segment; and a cursor 301. As in FIG. 3, a user may select the starting point 302 on the first selected segment and then select, as the ending point 305, any point on the first selected segment, which a user wants to select, so as to set the first selected segment 306. When an ending point of the first selected segment 306 is selected, in the case in which a cursor, which is output within a screen by input devices, e.g., a mouse and a touch pen, does not exist on any segment of a 2D pattern, a point on a segment that is the closest in distance to a current cursor position may be selected as the ending point 305 if the current cursor position has been selected as the ending point. After a user inputs the starting point on the first segment, the length of the line may be displayed, wherein the line is acquired after the starting point is connected to the point that is on the first segment and that is closest in distance to the current cursor position. According to the movement of the cursor, the length of the line may be changed, which is acquired after the starting point is connected to the point that is on the segment and that is the closest in distance to the cursor. Once the ending point 305 of the first selected segment is selected, its length 308 is set. A user may set the length 308 in various units e.g., cm, mm, m, inch, etc.

FIG. 5 is a diagram illustrating an example of setting a second selected segment. FIG. 5 illustrates two patterns 303 and 304 to be sewn; a starting point 302 of the first selected segment; an ending point 305 of the first selected segment; a first selected segment 306; a length 308 of the first selected segment; a starting point 309 of the second selected segment; and a cursor 301. The cursor 301, which is the position that input devices e.g., a mouse and a touch pen display on a screen, is positioned at one point 309 on the pattern 304. If the cursor 301 selects any one point on the pattern, the selected point may be a starting point of the second selected segment. In other words, if the cursor 301 selects any one point on the second segment on the pattern, the selected point may be the starting point of the second selected segment, wherein the point is input through input devices. In FIG. 5, the segments to be sewn on the pattern are between each of the points on the pattern. In FIG. 5, the segments to be sewn on the pattern are set as an outline of the pattern, which exemplary embodiments are not limited thereto; and any segment, which is acquired after two points on the pattern are connected, may be set as the segment to be sewn. The cursor 301 is not positioned on the segment on any one pattern, and if a current cursor position is chosen as the starting point of the second selected segment, the point on the segment on the pattern that is closest in distance to the current cursor position may be selected as the starting point.

FIG. 6 is a diagram illustrating an example of displaying a candidate for an ending point. FIG. 6 illustrates: two patterns 303 and 304 to be sewn; a starting point 302 of the first selected segment; an ending point 305 of the first selected segment; a first selected segment 306; a length 308 of the first selected segment; a starting point 309 of the second selected segment; a candidate

310 for an ending point; and a cursor 301. If the starting point 309 of the second selected segment is input, a point is displayed as the candidate 310 for the ending point of the second selected segment, wherein the point is the closest in distance to the position of the current detected cursor 301 and makes the second selected segment the same as the length of the first selected segment along the second segment that includes the input starting point 309, wherein the second selected segment is made by connecting the input starting point 309 to such a point. Since the current detected cursor 301 is closer to a second segment 312 of the second segments 311 and 312 that include the starting point 309 of the second selected segment, a candidate 310 for the ending point is generated on the second segment 312, wherein the second segments 311 and 312 meet together on the same point, which is the starting point 309. If the cursor 301 is closer to the second segment 311, the candidate 310 may be generated on the second segment 311.

FIG. 7 is a diagram illustrating examples of moving a cursor position, displaying a length, and displaying a difference value. FIG. 7 illustrates: two patterns 303 and 304 to be sewn; a starting point 302 of a first selected segment; an ending point 305 of the first selected segment; the first selected segment 306; a length 308 of the first selected segment; a starting point 309 of the second selected segment; a candidate 310 for an ending point; a length 313 of the second selected segment; a difference value 314; and a cursor 301. The cursor 301, which was positioned in the distance lower than a reference value to the candidate 310, moves to the position of the candidate 310 and then positioned on the candidate 310. Since the candidate 310 is displayed, and the cursor 301 moves and is positioned to the position of the candidate 310

under a certain condition, the second selected segment may be easily set to be the same as the first selected segment. Once the position of the cursor 301 is moved, the length of a segment is also changed accordingly, wherein such a segment is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position. As illustrated in FIG. 7, the length of the first selected segment is the same as the length of the second selected segment. That is, in FIG. 7, the difference value 314 between the length of the first selected segment and the length of a line is displayed 0, wherein the line is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

FIG. 8 is a diagram illustrating an example of displaying a difference value in 27 and displaying a warning sign in 28 and 29. FIG. 9 illustrates: a cursor 301; a length 313 of a line, which is acquired by connecting the starting point, input along a second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position; and a difference value 314 between a length of a first selected segment and the length of a line, which is acquired by connecting the input starting point to a point that is on the second segment and that is the closest in distance to the current cursor position. The length 313 and the length 314 are changed according to the movement of the cursor 301. For example, the difference value 314 illustrated in FIG. 7 is displayed in blue. On the contrary, the difference value illustrated in FIG. 8 is, for example, displayed in red. In FIG. 8, since the second selected segment is shorter than the first selected segment, wrinkles on the clothes may be created when the two segments

are sewn together. In other words, in the case the wrinkles are likely to be created when the first selected segment is sewn to the second selected segment, the difference value therebetween may be displayed in red. If the difference value is greater than a reference value, the difference value is displayed in red so as to show a warning sign. Whether wrinkles are created on a 3D pattern may depend on the sewing method, the types of fabric, etc., wherein the 3D pattern is created after the first and second selected segments are sewn together and then through a draping process. For example, knit and chiffon stretching well do not create wrinkles if the difference between the first and second selected segments is lower than one inch. Cotton and denim not stretching well may not create wrinkles if the difference between the first and second selected segments is lower than one centimeter.

FIG. 9 is a diagram illustrating another example of displaying a difference value in 27 and displaying a warning sign in 28 and 29. FIG. 9 illustrates: a cursor 301; a length 313 of a line, which is acquired by connecting the starting point, input along a second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position; and a difference value 314 between a length of a first selected segment and the length of a line, which is acquired by connecting the input starting point to a point that is on the second segment and that is the closest in distance to the current cursor position. The length 313 and the length 314 are changed according to the movement of the cursor 301. For example, the difference value 314 illustrated in FIG. 7 is displayed in blue. On the contrary, the difference value illustrated in FIG. 9 is, for example, displayed in red. In FIG. 9, since the second selected segment is longer than the first selected segment, wrinkles on the clothes may be created when

the two segments are sewn together. In other words, in the case the wrinkles are likely to be created when the first selected segment is sewn to the second selected segment, the difference value therebetween may be displayed in red. If the difference value is greater than a reference value, the difference value is displayed in red so as to show a warning sign. Whether wrinkles are created on a 3D pattern may depend on the sewing method, the types of fabric, etc., wherein the 3D pattern is created after the first and second selected segments are sewn together and then through a draping process. For example, knit and chiffon stretching well do not create wrinkles if the difference between the first and second selected segments is lower than one inch. Cotton and denim not stretching well may not create wrinkles if the difference between the first and second selected segments is lower than one centimeter.

FIG. 10 is a diagram illustrating 2D patterns, and 3D patterns prior to the draping. When first and second selected segments on the 2D patterns in a 2D pattern screen 402 are set, the first and second selected segments on the 2D patterns are also set in the positions on 3D patterns in a 3D screen 401, which correspond to the positions of the 2D patterns.

FIG. 11 is a diagram illustrating 2D patterns, and 3D patterns after the draping. After first and second selected segments on 2D patterns in a 2D pattern screen 402 are set, and then sewing instructions are made, the first and second selected segments are sewn together in response to the sewing instructions so that 3D clothing is created. The digital clothing illustrated in the 3D screen 401 is the result acquired by sewing together the first and second selected segments, which have been set, on the 2D patterns in the 2D pattern screen 402.

FIG. 12 is a diagram illustrating various shapes of first and second segments. FIG. 12 illustrates various shapes (a), (b), (c), and (d), each of which illustrates a pair of first and second selected segments.

(a) of FIG. 12 illustrates an example of sewing rectangular patterns, wherein each of a first selected segment 1201 and a second selected segment 1202 is the outline of a rectangle. In (b), a first selected segment 1203 is positioned on the outline of a rectangle, and a second selected segment 1204 is positioned inside a rectangle. As described above, since the selected segment is acquired by connecting two points that is likely to exist on the pattern, the selected segment may be positioned inside the pattern. Second segments 1204 and 1209 are set by a user; and in FIG. 12, a user selects, as the second selected segment 1204, one second segment of two second segments 1204 and 1209. In (c), a first selected segment is positioned on the outline of a rectangle, and a second selected segment is positioned inside a circle. As illustrated in (c), the first and second selected segments may be sewn together even if each of the first and second segments has the different shape e.g., a straight line and a curved line. In (d), a first selected segment is positioned on the outline of a rectangle, and a second selected segment is positioned on the outline of a figure. As described above, even if first and second segments are different from each other, the first and second selected segments may be sewn together. In addition, in the case of (d), even if the second selected segment is positioned inside the figure, the first and second selected segments may be sewn together.

FIG. 13 is a diagram illustrating an apparatus for creating digital clothing according to an exemplary embodiment.

In one exemplary embodiment, an apparatus for creating digital clothing includes a user interface 100 and a draper 200, wherein the apparatus includes a computing element and a storage element that stores patterns and the draped digital clothing.

The interface 100 may include a first selected segment setter 110, which sets a first selected segment, and a second selected segment setter 120, which sets a second selected segment. A user may set the first selected segment and the second selected segment through the interface 100. The user face 100 may include input devices e.g., a key board, a mouse, a touch pen, etc. The user interface 100 may be a computer program, in which a method of creating digital clothing is implemented in terms of software.

The first selected segment setter 110 sets the first selected segment by inputting the first selected segment, which is to be sewn on the first segment on the pattern. The first selected segment setter 110 may input the first selected segment, which is one of the two patterns to be sewn. The method of inputting the first selected segment is directly selecting the part to be sewn through input devices, e.g., a mouse, a touch pen, a keyboard; or enabling a user to select outlines on one pattern, which are provided through a computer program so that a user can select.

In the case in which the first selected segment to be directly sewn is selected through input devices, a starting point and an ending point of the first selected segment are input and selected. In the case in which a cursor, which is output within a screen by input devices, e.g., a mouse and a touch pen, does not exist on any segment of a pattern, a point on a segment that is the closest in distance to a current cursor position may be selected as a starting point or an ending point if the current cursor position has been selected as the starting point or the ending point.

The first selected segment setter 110 is specifically described above with reference to FIGS. 3 and 4.

The second selected segment setter 120 may include a starting point input 121, an ending point input 122, and a setter. The second selected segment is sewn to the first selected segment, which will be specifically described later.

The draper 200 sews together the first and second selected segments in response to the sewing instructions so that digital clothing is created. The draper 200 positions 2D patterns around an avatar model, which are then sewn to each other along the selected segments that a user has set. The draper 200 is specifically described above with reference to FIGS. 10 and 11.

The starting point input 121 inputs a starting point of a second selected segment on at least one second segment, which is to be sewn to the first selected segment. The starting point of the second selected segment may be input through input devices e.g., a mouse, a touch pen, a keyboard, etc. In the case in which a cursor, which is output within a screen by input devices, e.g., a mouse and a touch pen, does not exist on any segment on a pattern, a point on a segment that is the closest in distance to a current cursor position may be selected as a starting point if the current cursor position has been selected as the starting point. The starting point input 121 is specifically described with reference to FIG. 5.

The ending point input 122 inputs an ending point, which, upon starting the point-clicking process at the starting point located on the second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point. If the position of the current cursor is the closest in distance to the second

segment, which includes the input starting point, among a plurality of second segments, the point that is the closest to the position, in which the point-clicking process has occurred, is input as an ending point. In the case the point-clicking process occurs when the current cursor is closer to another second segment than the second segment that includes the input starting point, the ending point may not be input. The ending point may be selected so that a length of the second selected segment is the same as the first selected segment, which exemplary embodiments are not limited thereto, and the length of the second selected segment may be different from the length of the first selected segment.

The setter sets, as the second selected segment, the section of the second segment between the input starting point and the input ending point. If the length of the first selected segment is the same as the second selected segment, the digital clothing may be sewn without the wrinkles thereon. If the lengths of the first and second selected segments are not the same, wrinkles are created on the selected segment with the longer length, thus making aesthetic effects. However, even if the lengths of the first and second selected segments are not the same, the wrinkles may not be created according to how much the fabric stretches.

The first and second segments may be at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles. In the case of the shape of the pattern being a circle, if the entire border of the circle is sewn, the first segment or the second segment may a circle. If the partial border of the circle is sewn, the first segment or the second segment may be a curved line. Various shapes of the first and second segments are specifically described above with reference to FIG. 12.

An apparatus for creating digital clothing may further include a cursor position detector 210 and an ending point candidate display 220.

The cursor position detector 210 detects a current cursor position.

The ending point candidate display 220 determines, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment the same as the length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point, and then displaying such a candidate. As the candidate is shown, the ending point on the second selected segment on the pattern may be easily chosen to be the same as the first selected segment. The ending point candidate display 220 is specifically described above with reference to FIG. 6.

The apparatus for creating digital clothing may further include a cursor position mover 231. The cursor position mover 231 moves the position of the cursor to the position of the determined candidate for the ending point and displays it the difference between the current cursor position and the determined candidate for the ending point is lower than a reference value. For example, the reference value may be 15 pixels (px). The reference value may be set freely by a user. If a cursor is located around the candidate for the ending point, the cursor is moved onto the candidate for the ending point so that the second selected segment may be easily set to be the same as the first selected segment. The cursor position mover 231 is specifically described above with reference to FIG. 7.

The apparatus may further include a length display 240. The length display 240 calculates and displays in number at least one of: the length of the first selected segment and the length of the line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position, which is then displayed in number. The line may be consistently monitored, which is acquired by connecting the starting point, which is input along the second segment changed while the cursor is moved, to the point that is on the second segment and that is the closest in distance to the current cursor position. The length display 240 is specifically described above with reference to FIG. 7.

The apparatus may further include a difference value display 250. The difference value display 250 displays, in number, the difference value between the length of the first selected segment and the length of the line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position. A user may check the length of the first selected segment and the length of the line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position. Furthermore, using the difference value 250, a user may check the difference value therebetween. A user may check the difference so as to set the length of the first selected segment to be the same as the length of the second selected segment. The difference value display 250 is specifically described above with reference to FIGS. 7, 8, and 9.

The apparatus may include a warning sign display 260. The warning sign display 260 displays a warning sign when the difference value is greater than a reference value. When the difference value is greater than a reference value, the warning sign display 260 displays the warning sign by changing the colors of the calculated length and the difference value. If the second selected segment is shorter or longer than the first selected segment, wrinkles may be created when patterns is sewn. In other words, depending on whether the wrinkles are created or not when the first and second selected segments are sewn together, the difference value may be displayed in different color. For example, the difference value may be displayed in red. If the difference value is greater than a reference value, the warning sign may be displayed while the difference value is displayed in red. Whether wrinkles are created on the 3D pattern may depend on the sewing method, the types of fabric, etc., wherein the 3D pattern is created after the first and second selected segments are sewn together and then through the draping process. For example, knit and chiffon stretching well do not create wrinkles if the difference between the first and second selected segments is lower than one inch. Cotton and denim not stretching well may not create wrinkles if the difference between the first and second selected segments is lower than one centimeter.

According to the present disclosure, the selected segment on a pattern may be set to be the same as the length of another segment which is to be sewn thereto.

According to the present disclosure, the difference value may be checked when the selected segment on the pattern is not the same as another segment which is to be sewn thereto.

A number of examples have been described above. Nevertheless, it should be understood that various modifications may be made. For example, suitable results may be achieved if the described techniques are performed in a different order and/or if components in a described system, architecture, device, or circuit are combined in a different manner and/or replaced or supplemented by other components or their equivalents. Accordingly, other implementations are within the scope of the following claims.

WHAT IS CLAIMED IS:

1. A method of creating digital clothing, wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing, the method comprising:

setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment, which comprises:

inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment;

inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point; and

setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

2. The method of claim 1, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. The method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point:

detecting a current cursor position; and

displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

4. The method of claim 3, wherein the setting of the second selected segment further comprises:

in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position.

5. The method of claim 3, wherein the setting of the second selected segment further comprises:

calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second

segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

6. The method of claim 3, wherein the setting of the second selected segment further comprises:

displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

7. The method of claim 6, wherein the setting of the second selected segment further comprises:

in response to the difference value being greater than a reference value, displaying a warning sign.

8. The method of claim 7, wherein the displaying of the warning sign comprises:

in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value.

9. The method of claim 1, wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied.

10. An apparatus for creating digital clothing, wherein the apparatus comprises a computing element and a storage element storing patterns and draped digital clothing, the apparatus comprising:

a user interface, which comprises:

a first selected segment setter configured to set a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

a second selected segment setter, which comprises:

a starting point input configured to input a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; and

an ending point input configured to input an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point.

11. The apparatus of claim 10, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

12. The apparatus of claim 10, further comprising:

a cursor position detector configured to detect a current cursor position; and

an ending point candidate display configured to display a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

13. The apparatus of claim 12, further comprising:

a cursor position mover configured to, in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, move the cursor position to a position of the determined candidate for the ending point and display the cursor position.

14. The apparatus of claim 13, further comprising:

a length display configured to calculate and display at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

15. The apparatus of claim 13, further comprising:

a difference value display configured to display a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

16. The apparatus of claim 15, further comprising:

a warning sign display configured to, in response to the difference value being greater than a reference value, display a warning sign.

17. The apparatus of claim 16, wherein the warning sign display is configured to, in response to the difference value being greater than the reference value, display the warning sign by changing colors of the calculated length and the difference value.

ABSTRACT

A computer simulation technology that processes 2D clothing patterns and thus creates digital clothing.

The purpose of the present disclosure is to easily adjust a length of another segment to be sewn the same as a length of a selected segment on a pattern when free-sewing.

FIG. 1

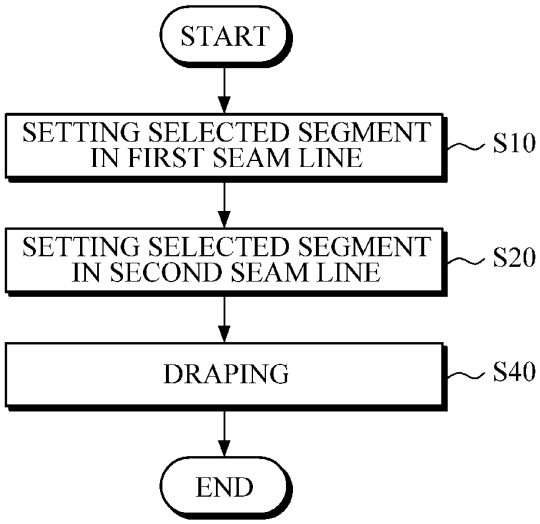

START
SETTING SELECTED SEGMENT IN FIRST SEAM LINE
S10
SETTING SELECTED SEGMENT IN SECOND SEAM LINE
S20
DRAPING
S40
END

FIG. 2

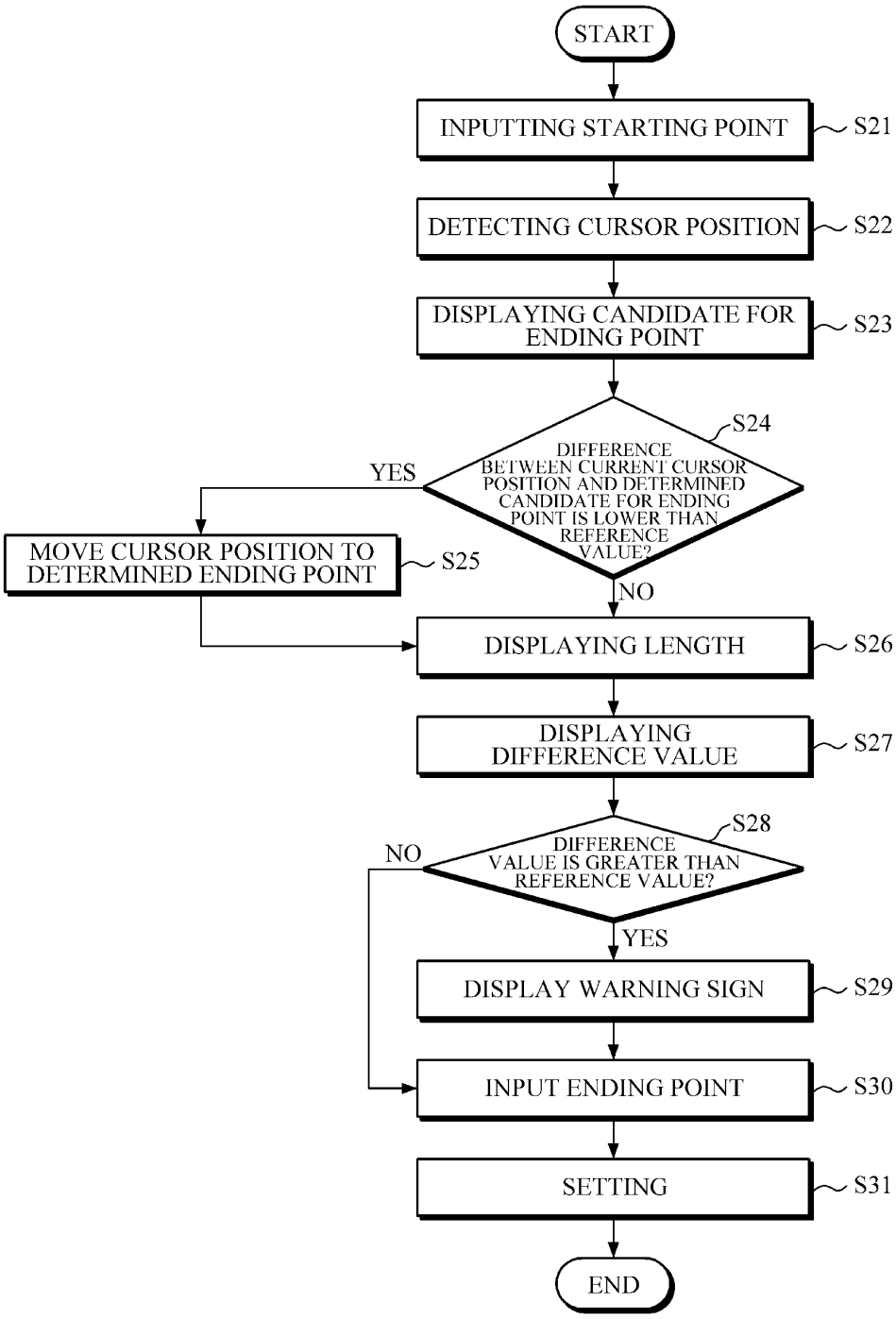

START
INPUTTING STARTING POINT
S21
DETECTING CURSOR POSITION
S22
DISPLAYING CANDIDATE FOR ENDING POINT
S23
S24
DIFFERENCE BETWEEN CURRENT CURSOR POSITION AND DETERMINED CANDIDATE FOR ENDING POINT IS LOWER THAN REFERENCE VALUE?
YES
NO
MOVE CURSOR POSITION TO DETERMINED ENDING POINT
S25
DISPLAYING LENGTH
S26
DISPLAYING DIFFERENCE VALUE
S27
S28
DIFFERENCE VALUE IS GREATER THAN REFERENCE VALUE?
NO
YES
DISPLAY WARNING SIGN
S29
INPUT ENDING POINT
S30
SETTING
S31
END

FIG. 3

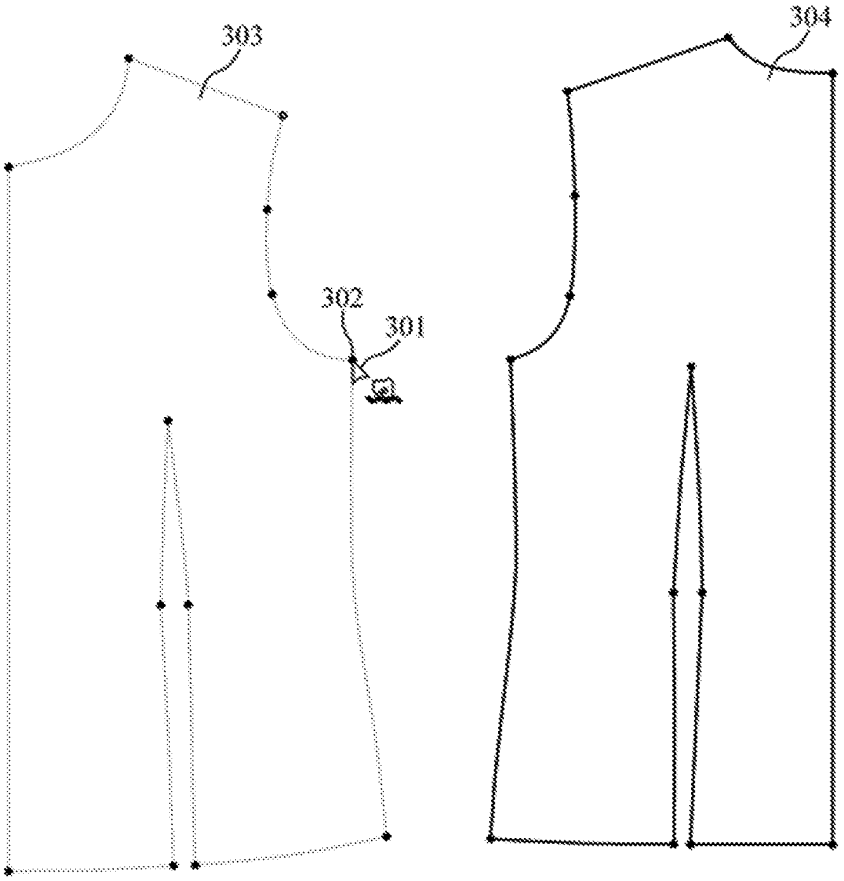


FIG. 4

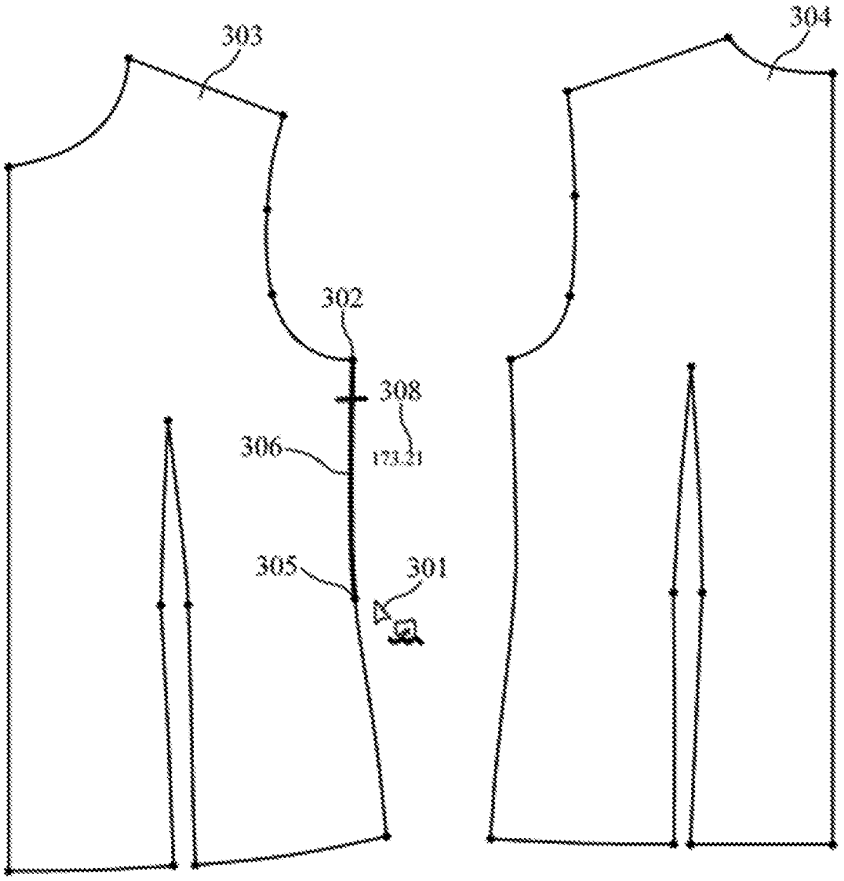


FIG. 5

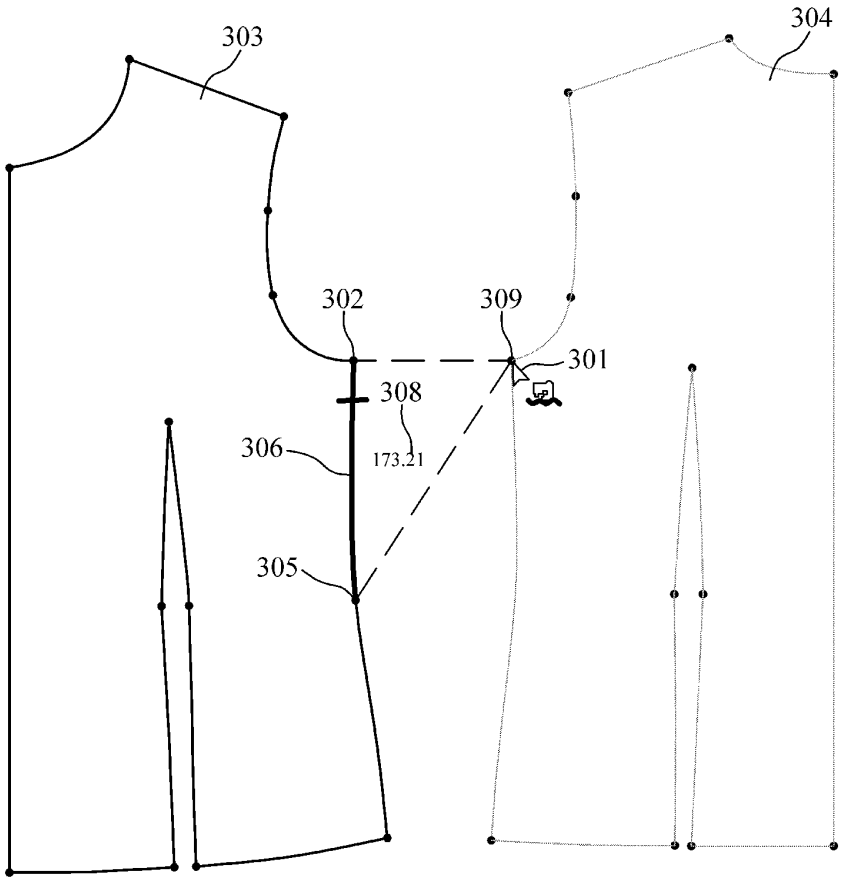


FIG. 6

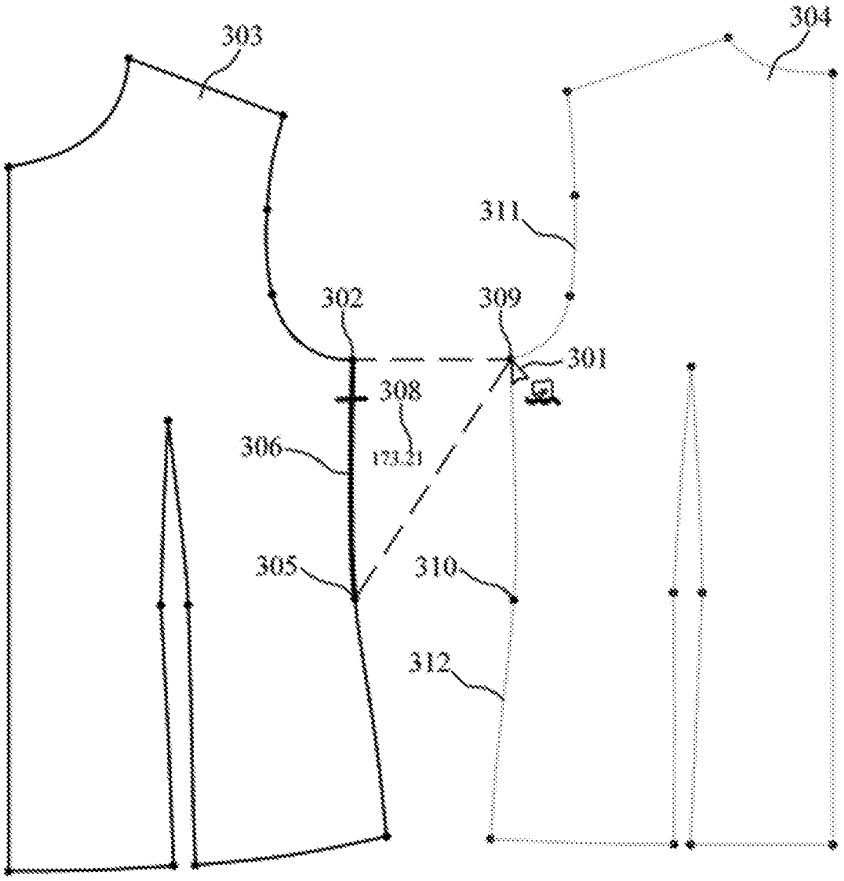


FIG. 7

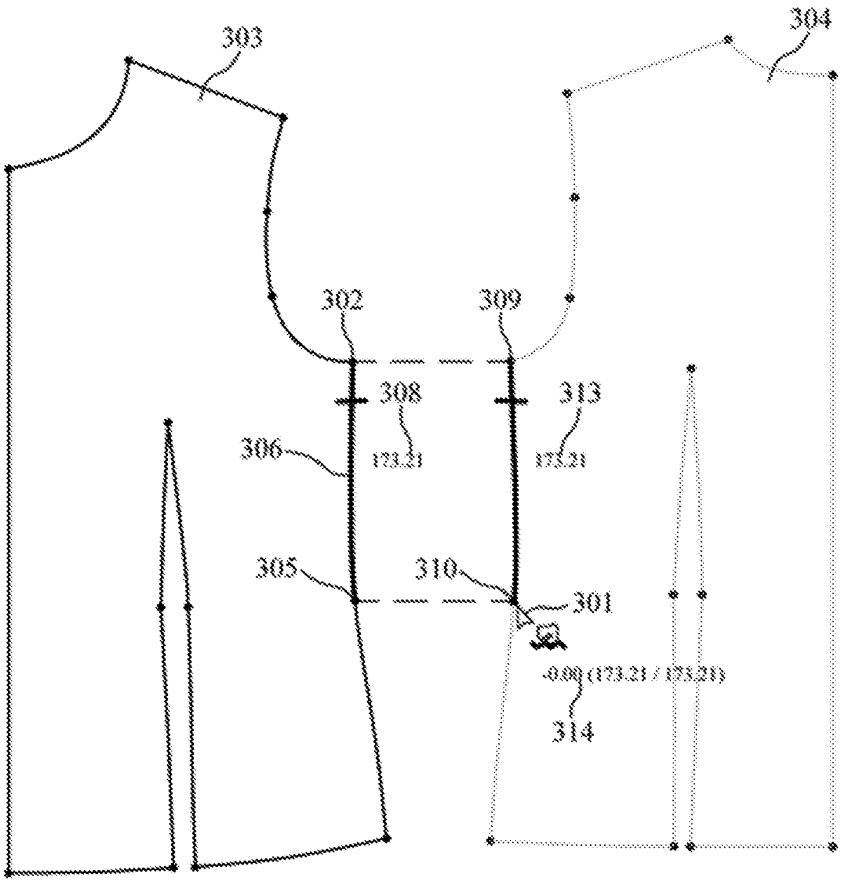

303
304
302
309
308
313
306
173.21
173.21
305
310
301
-0.00 (173.21 / 173.21)
314

FIG. 8

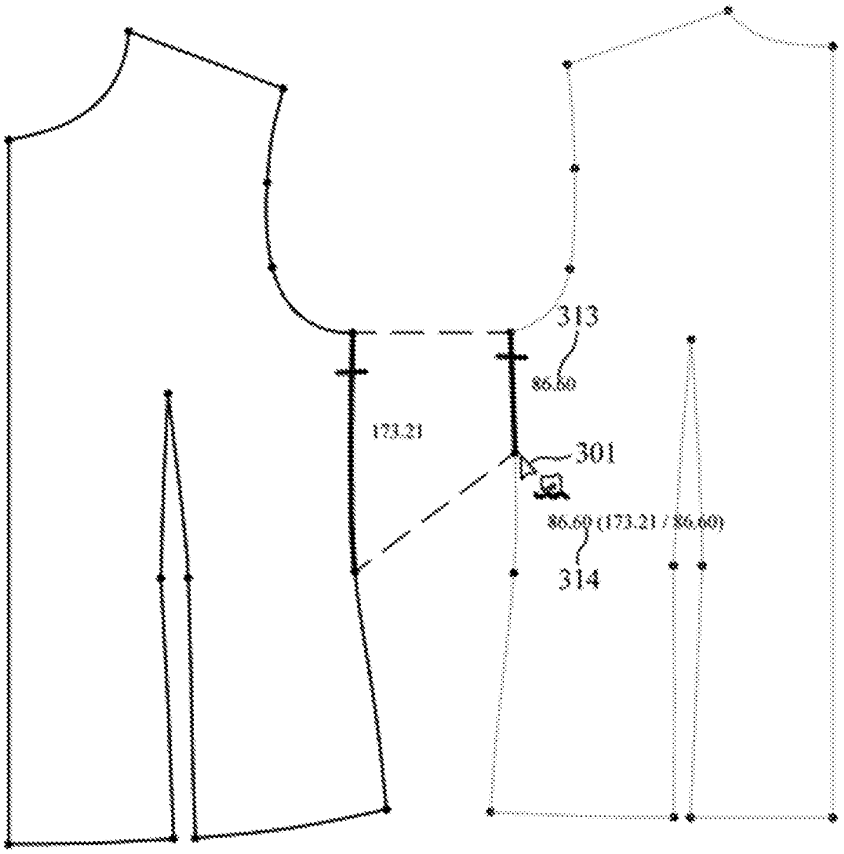


FIG. 9

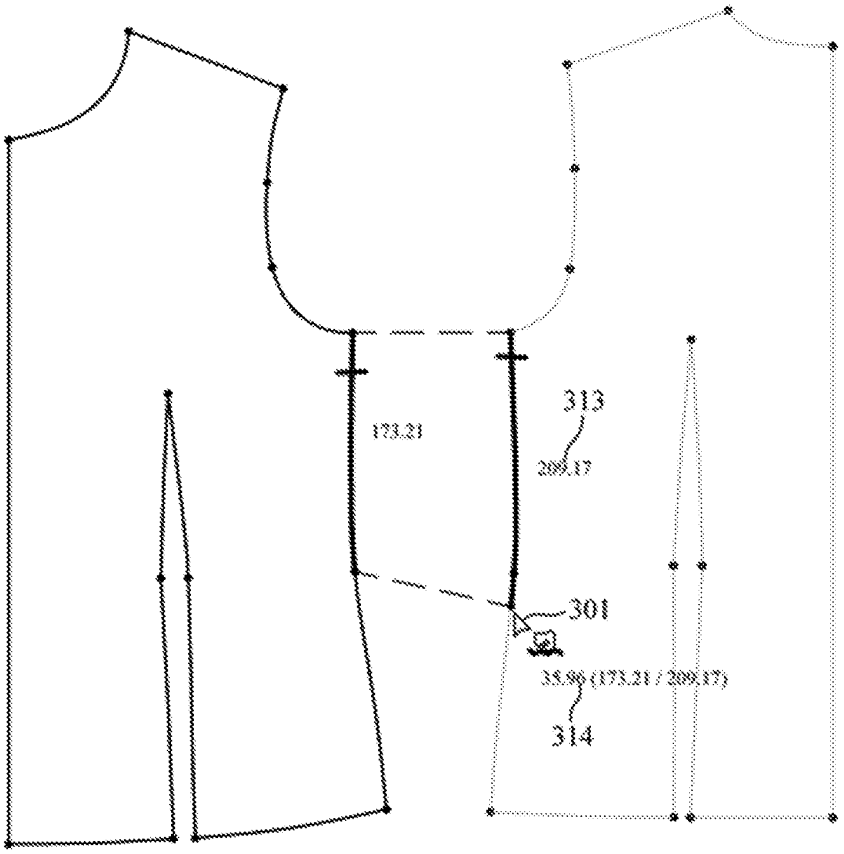


FIG. 10

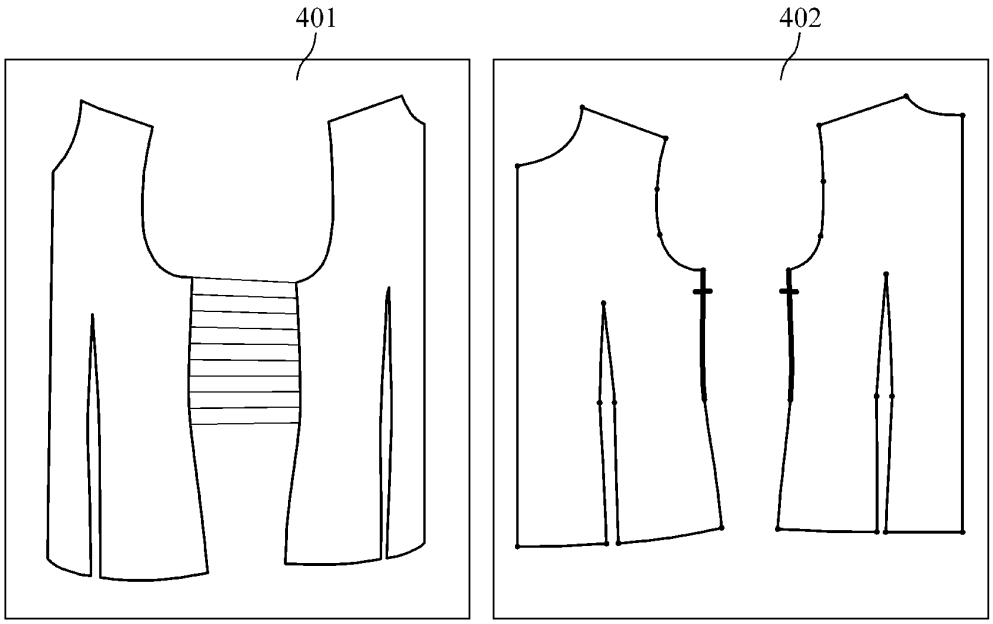


FIG. 11

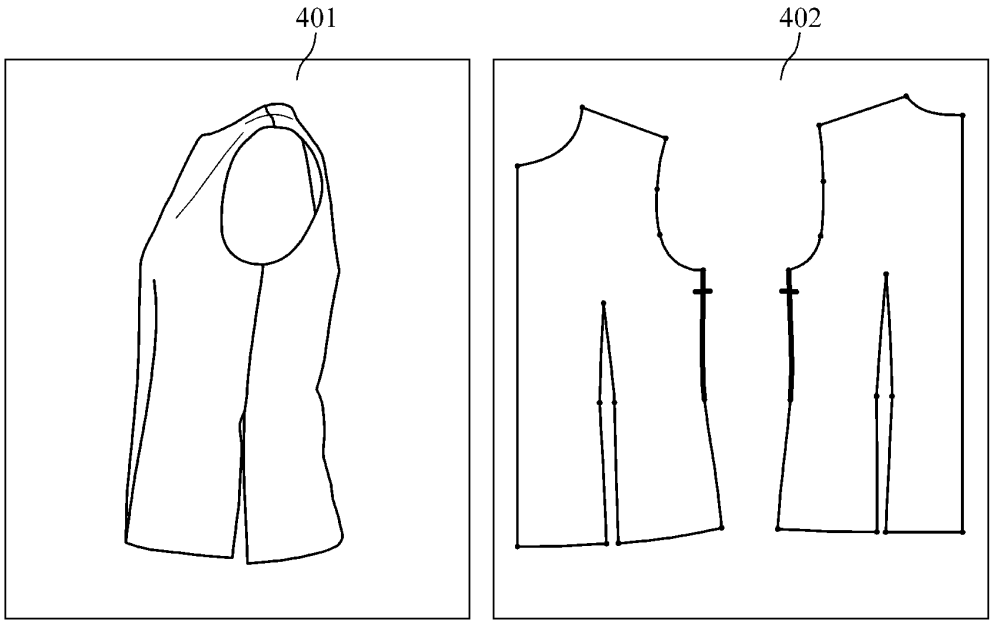


FIG. 12

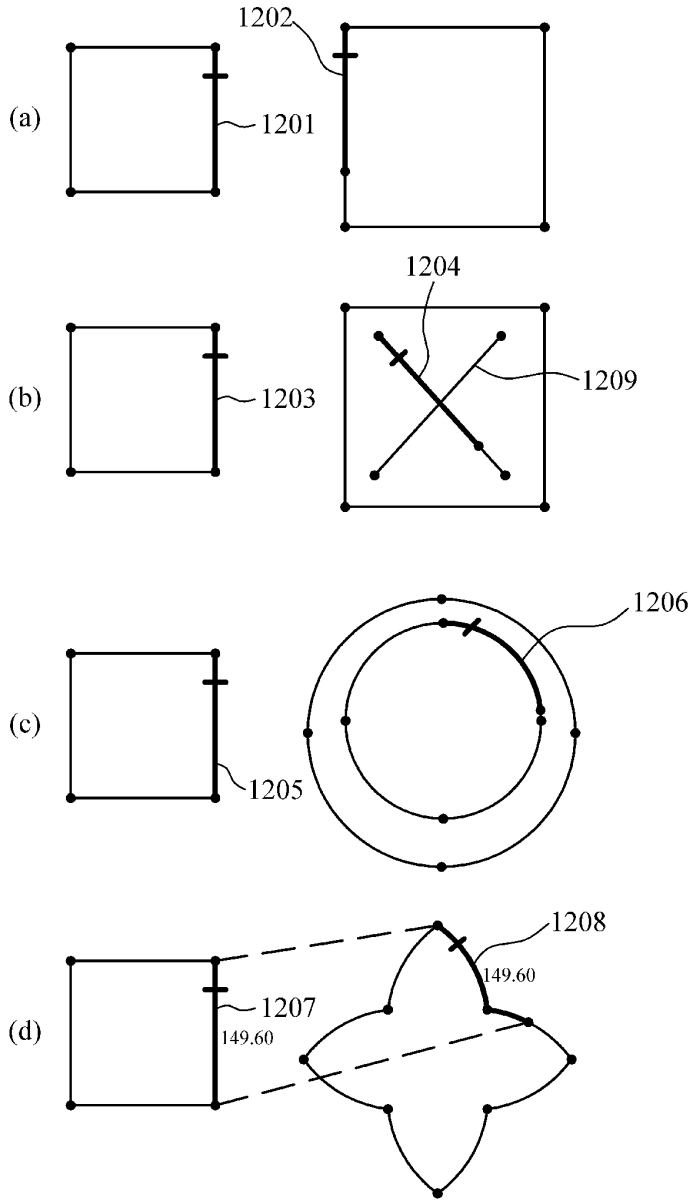
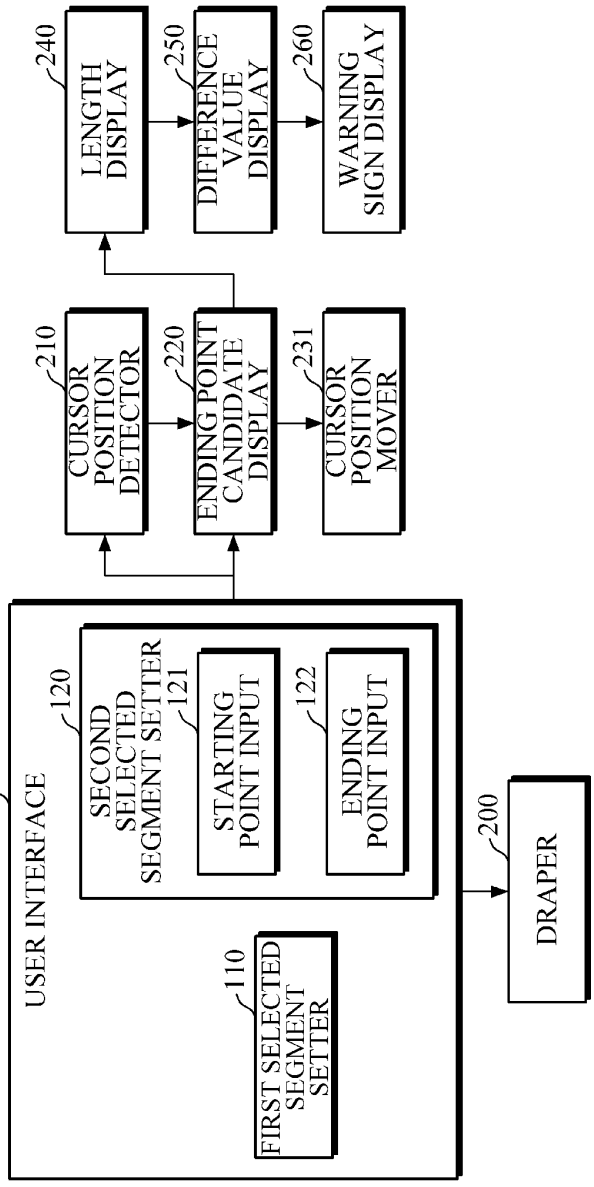

(a)
1201
1202
(b)
1203
1204
1209
(c)
1205
1206
(d)
1207
149.60
1208
149.60

FIG. 13


100
USER INTERFACE
110
FIRST SELECTED SEGMENT SETTER
120
SECOND SELECTED SEGMENT SETTER
121
STARTING POINT INPUT
122
ENDING POINT INPUT
200
DRAPER
210
CURSOR POSITION DETECTOR
220
ENDING POINT CANDIDATE DISPLAY
231
CURSOR POSITION MOVER
240
LENGTH DISPLAY
250
DIFFERENCE VALUE DISPLAY
260
WARNING SIGN DISPLAY

304052.0001C1

DECLARATION UNDER 37 CFR 1.63

As a below-named inventor, I hereby declare that this declaration is directed to the application attached hereto, or to United States Application Number or PCT International Application Number _____ filed on _____ (if applicable), entitled:

METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

The above-identified application was made or authorized to be made by me.

I believe I am the original inventor or an original joint inventor of a claimed invention in the above-identified application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both.

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information that became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

Inventor's Legal Name	**Seung Woo OH**		
Inventor's Signature		Date	2020.07.09
Residence (City, Country)	Seoul, Republic of Korea		
Mailing Address	(Eunpyeong New Town Gupabal Apt., Jingwan-dong), 926-204, 77, Jingwan 3-ro, Eunpyeong-gu, Seoul, Republic of Korea		

Inventor's Legal Name	**Kyoung Ae BANG**		
Inventor's Signature		Date	2020.07.09
Residence (City, Country)	Seoul, Republic of Korea		
Mailing Address	(Sinwol-dong) 43, Nambusunhwan-ro 46-gil, Yangcheon-gu, Seoul, Republic of Korea		

PTO/AIA/82B Equivalent

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the accompanying transmittal letter (form PTO/AIA/15, PTO/SB/16, PTO/AIA/18, PTO/AIA/19, PTO/SB/29, PTO/AIA/50, PTO/AIA/82A, or equivalent).

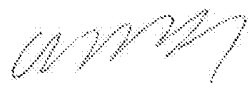
I hereby appoint the practitioners of NSIP Law associated with the following Customer Number as my attorneys or agents to transact all business in the United States Patent and Trademark Office connected with the application identified in the accompanying transmittal letter:

89980

Please recognize or change the correspondence address for the application identified in the accompanying transmittal letter to the address of NSIP Law associated with the following Customer Number:

89980

I, the below-named Assignee, am the original Applicant (if there is only one Applicant) or an original Applicant (if there is more than one Applicant) of the application identified in the accompanying transmittal letter. The undersigned, whose title is supplied below, is authorized to act on behalf of the Assignee.

Name of Assignee	CLO VIRTUAL FASHION INC.		
Address of Assignee	(Nonhyeon-dong) 17-4, Dosan-daero 8-gil, Gangnam-gu, Seoul, Republic of Korea		
Signature		Date	2020.09.09
Name	Seung Woo OH		
Title	CEO		

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS: Seung Woo OH et al. **CONFIRMATION NO.:** Not Yet Assigned

APPLICATION NO.: New Application **GROUP ART UNIT:** Not Yet Assigned

FILING DATE: Concurrently Herewith **EXAMINER:** Not Yet Assigned

TITLE: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant hereby submits the following information in accordance with the duty of disclosure set forth in 37 C.F.R. § 1.56.

MPEP 609.02(A)(2) states as follows (emphasis added):

> The examiner will consider information which has been considered by the Office in a parent application when examining: (A) a continuation application filed under 37 CFR 1.53(b), (B) a divisional application filed under 37 CFR 1.53(b), or (C) a continuation-in-part application filed under 37 CFR 1.53(b). A listing of the information need not be resubmitted in the continuing application unless the applicant desires the information to be printed on the patent.
>
> If resubmitting a listing of the information, applicant should submit a new listing that complies with the format requirements in 37 CFR 1.98(a)(1).

Accordingly, attached hereto is an Information Disclosure Statement complying with the format requirements in 37 CFR 1.98(a)(1) and listing the references cited in parent application number 14/921,269. This Information Disclosure Statement is being presented concurrently with the filing of the new application, and therefore no fee is due at this time.

It is respectfully requested that an Examiner-initialed copy of the attached PTO/SB08 form be returned to the undersigned.

Dated: July 10, 2020

By: /S. Mahmood Ahmad /
S. Mahmood Ahmad, Reg. No. 62,101
NSIP Law
P.O. Box 65745
Washington, DC 20035
Tel: (202) 429-0020

Substitute for PTO/SB/08a/b

INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				Complete if Known	
				Application Number	New Application
				Filing Date	Concurrently Herewith
				First Named Inventor	Seung Woo OH
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	2	Attorney Docket Number	304052.0001C1

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number - Kind Code[2] (*if known*)	Patent or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A	US 2004/0049309 A1	03-11-2004	Gardner et al.	
	B	US 2011/0298897 A1	12-08-2011	Sareen et al.	
	C	US 2013/0057544 A1	03-07-2013	Oh	Counterpart of KR 10-2011-0119260 A
	D	US 2014/0135971 A	05-15-2014	Park	
	E	US 2016/0078650 A1	03-17-2016	Kishikawa et al.	Counterpart of JP 2014-182670 A

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] - Number[4] - Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	a	JP 6-301763 A	10-28-1994	Nippon Steel Corp.		✓
	b	JP 2014-182670 A	09-29-2014	GEO Technical Laboratory Co., Ltd.	Counterpart of US 2016/0078650 A1	X
	c	KR 10-2011-0119260 A	11-02-2011	CLO Virtual Fashion	Counterpart of US 2013/0057544 A1	X

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	1	Volino, Pascal et al., "Resolving surface collisions through intersection contour minimization." Vol. 25., No. 3., ACM, 2006. (6 pages)	
	2	CLO 3D 2011 Marvelous Designer Manual (2014).	✓
	3	Korean Office Action issued March 28, 2016 in counterpart Korean Application No. 10-2015-0059086 (5 pages in Korean).	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04(a). [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached (X indicates Abstract only provided).

Substitute for PTO/SB/08a/b

INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				Complete if Known	
				Application Number	New Application
				Filing Date	Concurrently Herewith
				First Named Inventor	Seung Woo OH
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number	304052.0001C1

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	4	Korean Notice of Allowance issued September 24, 2016, in counterpart Korean Application No. 10-2015-0059086 (2 pages in Korean).	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04(a). [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached (X indicates Abstract only provided).

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Seung Woo		OH	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Seoul	Country of Residence [i]	KR

Mailing Address of Inventor:

Address 1	(Eunpyeong New Town Gupabal Apt., Jingwan-dong)
Address 2	926-204, 77, Jingwan 3-ro, Eunpyeong-gu
City	Seoul
State/Province	
Postal Code	
Country [i]	KR

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kyoung Ae		BANG	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	Seoul	Country of Residence [i]	KR

Mailing Address of Inventor:

Address 1	(Sinwol-dong) 43, Nambusunhwan-ro 46-gil
Address 2	Yangcheon-gu
City	Seoul
State/Province	
Postal Code	
Country [i]	KR

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

PTO/AIA/14 (07-14)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	89980		
Email Address	pto@nsiplaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING		
Attorney Docket Number	304052.0001C1	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	13	**Suggested Figure for Publication (if any)**	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	89980		

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	14921269	2015-10-23

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
10-2015-0059086	KR	2015-04-27	DFA6

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :	
If the Applicant is an Organization check here. ☒	
Organization Name	CLO VIRTUAL FASHION INC.

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Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

Mailing Address Information For Applicant:			
Address 1	(Nonhyeon-dong) 17-4, Dosan-daero 8-gil		
Address 2	Gangnam-gu		
City	Seoul	State/Province	
Country i	KR	Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	CLO VIRTUAL FASHION INC.

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	(Nonhyeon-dong) 17-4, Dosan-daero 8-gil		
Address 2	Gangnam-gu		
City	Seoul	State/Province	
Country i	KR	Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature	/S. Mahmood Ahmad/	Date (YYYY-MM-DD)	2020-07-10

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	304052.0001C1
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING	

First Name	Mahmood	Last Name	Ahmad	Registration Number	62101

Additional Signature may be generated within this form by selecting the Add button. Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent C o o p eration Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

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Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo OH
Filer:	Syed Mahmood Ahmad/Mark Gambriel
Attorney Docket Number:	304052.0001C1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1720**

Electronic Acknowledgement Receipt	
EFS ID:	39968468
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo OH
Customer Number:	89980
Filer:	Syed Mahmood Ahmad/Mark Gambriel
Filer Authorized By:	Syed Mahmood Ahmad
Attorney Docket Number:	304052.0001C1
Receipt Date:	10-JUL-2020
Filing Date:	
Time Stamp:	14:55:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1720
RAM confirmation Number	E202070E56336206
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1	Transmittal of New Application	NewContApp_3040520001C1_UtilityTransmittal.pdf	280404 0d73333bdd56429b0cb85f6b071c8659d79feb04	no	2
Warnings:					
Information:					
2		NewContApp_3040520001C1_AppAsFiled.pdf	143335 07dc1c6d31624f0acb6f659d0ac6af1d40949226	yes	36
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	29	
	Claims		30	35	
	Abstract		36	36	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	NewContApp_3040520001C1_DrawingsAsFiled.pdf	1302877 2841d1c989091920ae09869e9fe9abe599e8a392	no	14
Warnings:					
Information:					
4	Oath or Declaration filed	NewContApp_3040520001C1_ExecutedDec.pdf	949239 3906a95168fdb4212cdd4965eb6e79cf8c5f2cdf	no	1
Warnings:					
Information:					
5	Power of Attorney	NewContApp_3040520001C1_ExecutedPOA.pdf	952494 10f02e5e82b818523d92d868333e10738e8fdd15	no	1

Warnings:					
Information:					
6	Transmittal Letter	NewContApp_3040520001C1_Stmt.pdf	18383 cfa340058562c70556bb255c5ae37502254adfc6	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	NewContApp_3040520001C1_IDS.pdf	66643 a50b3a733a9a21bc6b55c4e089bfa2556c38bac4	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
8	Application Data Sheet	NewContApp_3040520001C1_AppDataSheet.pdf	1819178 4cd46793efc2969f6f4096cc4df992cecc88d565	no	7
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	34931 f19d44e69113f11d31217b43e176f620628ff5b3	no	2
Warnings:					
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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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Application number: 10-2015-0059086

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출 원 번 호 : 10-2015-0059086
Application Number

출 원 년 월 일 : 2015년 04월 27일
Filing Date Apr. 27, 2015

출 원 인 : (주)클로버추얼패션
Applicant(s) CLO Virtual Fashion Inc.

2020년 07월 22일

특 허 청
COMMISSIONER

제출 일자 : 2015-04-27

【서지사항】

【서류명】 특허출원서

【출원구분】 특허출원

【출원인】

【명칭】 (주)글로버추얼패션

【특허고객번호】 1-2009-003174-4

【대리인】

【명칭】 특허법인 신지

【대리인번호】 9-2010-100061-8

【지정된변리사】 이헌수, 유경열, 문호지, 박진석, 김병주

【포괄위임등록번호】 2014-050805-4

【발명의 국문명칭】 디지털 의상 객체 생성 방법 및 장치

【발명의 영문명칭】 method and apparatus for generating digital cloth object

【발명자】

【성명】 오승우

【성명의 영문표기】 OH SEUNG WOO

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【발명자】

제출 일자 : 2015-04-27

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【성명의 영문표기】 BANG KYOUNG AE

【주민등록번호】 870702-2XXXXXX

【우편번호】 158-829

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【국적】 KR

【출원언어】 국어

【심사청구】 청구

【취지】 위와 같이 특허청장에게 제출합니다.

대리인 특허법인 신지 (서명 또는 인)

【수수료】

【출원료】	0	면	46,000 원
【가산출원료】	55	면	0 원
【우선권주장료】	0	건	0 원
【심사청구료】	17	항	891,000 원

【합계】 937,000 원

【감면사유】 중기업(70%감면)[1]

【감면후 수수료】 281,100 원

【수수료 자동납부번호】 05409725904017

제출 일자 : 2015-04-27

【발명의 설명】

【발명의 명칭】

디지털 의상 객체 생성 방법 및 장치{method and apparatus for generating digital cloth object}

【기술분야】

【0001】 컴퓨터 시뮬레이션 기술에 관련된 것으로, 보다 상세하게는 2D 의상 패턴들을 재봉 처리하여 디지털 의상 객체를 생성하는 시뮬레이션 기술에 관한 것이다.

【발명의 배경이 되는 기술】

【0002】 현재 의상 시뮬레이션 기술은, 패션 산업뿐만 아니라 게임, 애니메이션, 영화 특수 효과에 이르기까지 다양한 분야에서 사용되고 있다. 또한 가상 세계에서의 의상 아이템 판매의 시장 규모도 수 조원에 달한다. 이 기술은 옷감을 질량을 가진 메쉬(mesh)로 모델링하여 옷을 입은 아바타의 움직임이나 바람, 조명 등의 외부 움직임에 따라 옷감의 움직임을 시뮬레이션할 수 있는 기술이다.

【0003】 패턴으로부터 디지털 의상 객체를 생성하기 위한 재봉 시뮬레이션 방법에서 서로 다른 2개의 패턴을 재봉하는 방식에는 선분 재봉 및 자유 재봉이 있다.

【0004】 선분 재봉은 점으로 구분되어 있는 선분들 중 선택된 두 선분을 재봉하는 것이고 자유 재봉은 재봉할 두 선분의 길이를 각각 자유롭게 조절하여 사용자가 원하는 조절된 길이를 가지는 두 선분을 재봉하는 것이다.

【0005】 자유 재봉의 경우, 자세하게 사용자가 재봉할 두 선분의 길이를 같도록 조절하여 재봉하려는 경우, 먼저 선택된 하나의 선분의 길이와 같은 나머지 하나의 선분의 길이를 마우스와 같은 입력 장치를 통해 조절하는 것은 정밀함이 요구된다.

【0006】 자유 재봉에서 재봉하려는 선분의 길이를 다르게 제도하여 재봉하게 되면, 잘 늘어나는 원단의 경우 디지털 의상도 마치 같은 길이로 재봉한 것처럼 보일 수 있다. 그러나 잘 늘어나지 않는 원단의 경우에는 디지털 의상에 주름이 생길 수 있다.

【0007】 나아가, 자유 재봉으로 재봉될 두 선분의 길이를 다르게 설정하려는 경우, 나중에 선택된 선분이 처음 선택된 선분에 비해 얼마나 짧은지 또는 얼마나 긴지를 나중에 선택된 선분의 길이를 조절하는 과정에서 인지할 필요가 있다.

【0008】 또한, 재봉될 두 선분의 길이 차이가 재봉이 불가능 해질 정도의 차이 이상일 때 경고 표시를 표시하여, 나중에 선택된 선분의 길이를 조절하는 과정에서 사용자가 인식하도록 할 필요가 있다.

【발명의 내용】

【해결하고자 하는 과제】

【0009】 본 발명은 자유 재봉시, 패턴상에서 선택된 선분의 길이와 같은 길이를 가지도록 재봉될 다른 선분의 길이를 쉽게 조절하게 함을 목적으로 한다.

【0010】 본 발명은 자유 재봉시, 패턴상에서 선택된 선분과 선택된 선분과 재봉될 선분의 길이 차이를 산출하여 표시함으로써 정밀한 재봉이 이루어지게 함을 다른 목적으로 한다.

【0011】 본 발명은 자유 재봉시, 패턴상에서 선택된 선분과 선택된 선분과 재봉될 선분의 길이 차이가 재봉이 불가능할 정도로 큰 경우 경고 표시를 사용자가 인지하게 함을 또 다른 목적으로 한다.

【과제의 해결 수단】

【0012】 일 양상에 따른, 컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 컴퓨팅 장치에 의해 실행 가능한 디지털 의상 객체 생성 방법에 있어서, 디지털 의상 객체 생성 방법은 패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정하는 일측 재봉선택선 설정 단계와 일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는 시작점 입력 단계, 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는 끝점 입력 단계, 상

기 입력된 시작점으로부터 입력된 끝점까지의 타측 재봉가능선 구간을 타측 재봉선택선으로 설정하는 설정 단계를 포함하는 타측 재봉선택선 설정 단계 및 재봉 명령에 따라 상기 일측 재봉선택선과 타측 재봉선택선을 재봉 처리하여 3D의상 객체를 생성하는 드레이핑 단계를 포함할 수 있다.

【0013】 다른 양상에 있어서, 일측 재봉가능선 또는 타측 재봉가능선은 직선, 곡선, 다중 분기선, 다각형 및 원 중 적어도 하나일 수 있다.

【0014】 또 다른 양상에 있어서, 디지털 의상 객체 생성 방법은 상기 타측 재봉선택선 설정 단계가 시작점 입력 단계와 끝점 입력 단계 사이에 현재 커서 위치를 검출하는 커서 위치 검출 단계, 입력된 시작점으로부터 상기 검출된 현재 커서 위치와 최단 거리이면서 타측 재봉가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보로 산출하고 이를 표시하는 끝점 후보 표시 단계를 더 포함할 수 있다.

【0015】 또 다른 양상에 있어서, 타측 재봉선택선 설정 단계는 현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하이면 커서가 산출된 끝점 후보 위치로 이동하여 표시되는 커서 위치 이동 단계를 더 포함할 수 있다.

【0016】 또 다른 양상에 있어서, 타측 재봉선택선 설정 단계는 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이 중 적어도 하나를 산출하여 표시하는 길이 표시 단계를 더 포함할 수 있다.

【0017】 또 다른 양상에 있어서, 타측 재봉선택선 설정 단계는 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 표시하는 차이값 표시 단계를 더 포함할 수 있다.

【0018】 또 다른 양상에 있어서, 타측 재봉선택선 설정 단계는 차이값이 기준치 이상이면 경고 표시를 하는 경고 표시 단계를 더 포함할 수 있다.

【0019】 또 다른 양상에 있어서, 경고 표시 단계는 차이값이 기준치 이상이면 산출된 길이 및 차이값의 색깔을 바꾸어 경고 표시를 할 수 있다.

【발명의 효과】

【0020】 본 발명은 패턴상에서 선택된 선분과 선택된 선분과 재봉할 선분의 길이를 같도록 설정할 수 있다.

【0021】 본 발명은 패턴상에서 선택된 선분과 선택된 선분과 재봉할 선분의 길이가 상이할 때 그 차이값을 확인할 수 있다.

【도면의 간단한 설명】

【0022】 도 1은 일 실시예에 따른 디지털 의상 객체 생성 방법의 흐름을 도시한다.

도 2는 일 실시예에 따른 타측 재봉선택선 설정 단계의 세부적인 흐름을 도

시한다.

도 3은 일측 재봉선택선 설정 단계를 설명하기 위한 일 예를 도시한다.

도 4는 일측 재봉선택선 설정 단계를 설명하기 위한 다른 예를 도시한다.

도 5는 타측 재봉선택선 설정 단계를 설명하기 위한 일 예를 도시한다.

도 6은 끝점 후보 표시 단계를 설명하기 위한 일 예를 도시한다.

도 7은 커서 위치 이동 단계, 길이 표시 단계, 차이값 표시 단계를 설명하기 위한 일 예를 도시한다.

도 8은 차이값 표시 단계 및 경고 표시 단계를 설명하기 위한 일 예를 도시한다.

도 9는 차이값 표시 단계 및 경고 표시 단계를 설명하기 위한 다른 예를 도시한다.

도 10은 2D 패턴 및 드레이핑 전의 3D 패턴을 도시한다.

도 11은 2D 패턴 및 드레이핑 후의 3D 패턴을 도시한다.

도 12는 일측 재봉가능선 및 타측 재봉가능선의 다양한 형태를 도시한다.

도 13은 일 실시예에 따른 디지털 의상 객체 생성 장치의 구성을 도시한다.

【발명을 실시하기 위한 구체적인 내용】

【0023】 전술한, 그리고 추가적인 양상들은 첨부된 도면을 참조하여 설명하는 실시예들을 통해 구체화된다. 각 실시예들의 구성 요소들은 다른 언급이나 상호간에 모순이 없는 한 실시예 내에서 다양한 조합이 가능한 것으로 이해된다. 나

아가 본 발명은 여러 가지 상이한 형태로 구현될 수 있으며 여기에서 설명하는 실시예에 한정되지 않는다.

【0024】 도면에서 본 발명을 명확하게 설명하기 위해서 설명과 관계없는 부분은 생략하였으며, 명세서 전체를 통하여 유사한 부분에 대해서는 유사한 도면 부호를 붙였다. 그리고, 어떤 부분이 어떤 구성 요소를 "포함"한다고 할 때, 이는 특별히 반대되는 기재가 없는 한 다른 구성 요소를 제외하는 것이 아니라 다른 구성 요소를 더 포함할 수 있는 것을 의미한다. 명세서에서 기술한 부란, "하드웨어 또는 소프트웨어의 시스템을 변경이나 플러그인 가능하도록 구성한 블록"을 의미하는 것으로서, 즉 하드웨어나 소프트웨어에 있어 기능을 수행하는 하나의 단위 또는 블록을 의미한다.

【0025】 제안된 디지털 의상 객체 생성 방법 및 그 장치와 그 방법을 실행시키기 위한 컴퓨터 프로그램을 기록한 기록 매체는 3D 시뮬레이션 기술 분야에 적용될 수 있다.

【0026】 디지털 의상은 실제 의상 제작 과정을 모티브로 하여 그 과정을 반영한 컴퓨터 시뮬레이션 저작 프로그램을 통하여 생성 된다. 예를 들어 제작자가 의상의 2D 패턴을 그린 후, 옷을 입게 될 아바타 모델에 2D 패턴을 드레이핑 시뮬레이션 한다. 드레이핑 결과를 렌더링 하여 표시함으로써 3D의상이 화면으로 출력된다. 아바타 모델과 2D 의상 패턴은 사용자가 직접 컴퓨터 프로그램을 통하여 그리거나, 저장된 것을 사용할 수 있다. 사용자가 직접 그리는 경우 다양한 그래픽 소프트웨어나 CAD 프로그램을 사용하여 입력할 수 있으며, 제공되는 2D 패턴 제작

툴을 사용할 수도 있다.

【0027】 일 실시예에 따른 디지털 의상 착장 시뮬레이션 방법에서 드레이핑 시뮬레이션 방법은, 패턴의 메쉬화 단계, 아바타 주변에 패턴의 배치, 패턴과 아바타의 충돌 여부를 판단하는 단계와, 충돌 제거 힘(force)을 생성하는 단계 및 드레이핑 시뮬레이션 과정을 수행하는 단계를 포함한다. 패턴의 메쉬화 단계는 딜러니 삼각화(Delaunay Triangulation) 기법을 적용하여 이루어 질 수 있으며, 드레이핑 시뮬레이션 과정은 일 실시 예로 [Pascal Volino, Nadia MagnenatThalmann: Resolving surface collisions through intersection contour minimization.ACM Trans. Graph. 25(3): 1154-1159 (2006)]에 게시된 방법을 사용할 수 있다.

【0028】 도 1은 일 실시예에 따른 디지털 의상 객체 생성 방법의 흐름을 도시한다.

【0029】 일 양상에 있어서, 컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 컴퓨팅 장치에 의해 실행 가능한 디지털 의상 객체 생성 방법은 일측 재봉선택선 설정 단계(S10), 타측 재봉선택선 설정 단계(S20) 및 드레이핑 단계(S30)를 포함할 수 있다.

【0030】 일 실시예에 있어서, 일측 재봉선택선 설정 단계(S10)는 패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정

한다. 일측 재봉선택선 설정 단계(S10)는 재봉될 두 개의 선 중 하나의 선인 일측 재봉선택선을 입력할 수 있다. 일측 재봉선택선을 입력 하는 방법은 마우스, 터치 팬, 키보드 등의 입력 장치를 통해 직접 재봉하려는 부분을 선택하거나, 컴퓨터 프로그램을 통하여 어느 하나의 패턴 상에 선택 가능한 외곽선을 제시하여 사용자가 선택하게 할 수도 있다.

【0031】 입력 장치를 통해 직접 재봉하려는 일측 재봉선택선을을 선택할 경우, 일측 재봉선택선의 시작점과 끝점을 입력하여 선택할 수 있다. 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력하는 위치인 커서가 어느 하나의 패턴 상에 존재하는 재봉 가능선에 존재 하지 않는데, 현재 커서 위치를 시작점 또는 끝점으로 선택한 경우 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점 또는 끝점으로 할 수 있다. 일측 재봉선택선 설정 단계(S10)에 대한 추가적인 설명은 도 3 및 도 4에 대한 설명과 함께 후술한다.

【0032】 패턴은 3D 의상을 구성하기 위해 재단되는 옷 본을 컴퓨터에서 2차원 객체로 시뮬레이션 한 2D 패턴 및 3차원 객체로 시뮬레이션 한 3D 패턴 중 적어도 하나를 포함할 수 있다. 2D 패턴은 디지털 의상을 구성하기 위해 재단되는 옷 본을 컴퓨터에서 2차원 객체로 시뮬레이션 한 것을 말한다. 2D 패턴은 옷감의 외형과 물리적인 특성의 설정으로 생성된다. 2D 패턴의 외형을 나타내기 위해서는 2D 패턴의 외곽선 정보 입력이 필요하다. CAD 툴이나 다양한 그래픽 프로그램 툴을 이용하여 패턴의 외곽선과 꼭지점을 생성할 수 있고, 또는 의상 유형에 따른 2D 패

턴 모델로 구성된 저장 장치로부터 선택하여 사용할 수 있다. 외곽선에 의해 외형이 결정된 2D 패턴의 내부는 삼각형 또는 사각형의 메쉬로 구성될 수 있다. 메쉬는 질량을 갖는 격자 점과 격자 점을 연결하는 스프링으로 구성될 수 있다. 격자 점과 스프링을 통해 2D 패턴 소재의 성질, 옷감의 접힘, 늘어뜨림 등의 모양을 나타낼 수 있다.

【0033】일 양상에 있어서, 타측 재봉선택선 설정 단계(S20)는 시작점 입력 단계(S21), 끝점 입력 단계(S30) 및 설정 단계(S31)를 포함할 수 있다. 타측 재봉선택선은 일측 재봉선택선과 재봉될 선으로 이에 대한 구체적인 설명은 후술한다.

【0034】일 실시예에 있어서, 드레이핑 단계(S30)는 재봉 명령에 따라 상기 일측 재봉선택선과 타측 재봉선택선을 재봉 처리하여 디지털 의상 객체를 생성한다. 드레이핑 단계(S30)에서는 2D 패턴이 아바타 모델 주위로 배치되면서 사용자가 설정한 재봉선택선에 따라 재봉된다.

【0035】일반적으로 착장(draping)은 바디(body)에 직접 천을 대면서 디자인을 창작하거나, 예정된 디자인의 다트나 이음을 재단하면서 입체적으로 완성하는 기법을 의미한다. 본 명세서에서 '착장'은 컴퓨터 프로그램에 의해 2D 패턴 정보로부터 3D의상 객체를 생성하는 과정을 의미한다. 2D 패턴상에 재봉될 재봉선택선이 입력 되면 2D 패턴이 결합되면서 디지털 의상이 3D 객체 상에 생성 즉 착장 된

다. 드레이핑 단계(S30)에 대한 구체적인 설명은 도 10 및 도 11의 설명과 함께 후술한다.

【0036】 도 2는 일 실시예에 따른 타측 재봉선택선 설정 단계(S20)의 세부적인 흐름을 도시한다.

【0037】 전술한 것처럼 타측 재봉선택선 설정 단계(S20)는 시작점 입력 단계(S21), 끝점 입력 단계(S30) 및 설정 단계(S31)를 포함한다.

【0038】 일 실시예에 있어서, 시작점 입력 단계(S21)는 일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는다. 타측 재봉선택선의 시작점은 마우스, 터치 펜, 키보드 등의 입력 장치를 통해 직접 선택될 수 있다. 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력하는 위치인 커서가 어느 하나의 2D 패턴 상에 존재하는 재봉가능선에 존재 하지 않는데, 현재 커서 위치를 시작점으로 선택한 경우, 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점으로 할 수 있다. 시작점 입력 단계(S21)에 대한 추가적인 설명은 도 5 에 대한 설명과 함께 후술한다.

【0039】 일 실시예에 있어서, 끝점 입력 단계(S30)는 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는다. 현재 커서의 위치가 복수의 타측 재봉가능선 중 시작점이 입력된 타측 재봉가능선과 가장 가까운 경우, 포인팅

선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는다. 현재 커서의 위치가 시작점이 입력된 타측 재봉가능선이 아닌 다른 타측 재봉가능선과 더 가까이 있는데 포인팅 선택 이벤트가 발생한 경우, 끝점 입력이 이루어 지지 않을 수 있다. 일측 재봉선택선의 길이와 동일한 길이를 갖도록 타측 재봉선택선의 끝점을 선택할 수 있지만, 이에 한정되는 것은 아니고 일측 재봉선택선의 길이와 다른 길이를 가지도록 타측 재봉선택선의 끝점을 선택할 수도 있다.

【0040】일 실시예에 있어서, 설정 단계(S31)는 입력된 시작점으로부터 입력된 끝점까지의 타측 재봉가능선 구간을 타측 재봉선택선으로 설정한다. 일측 재봉선택선과 타측 재봉선택선의 길이가 같은 경우 디지털 의상에 주름 없이 재봉이 이루어질 수 있다. 의도적으로 일측 재봉선택선의 길이와 타측 재봉선택선의 길이를 다르게 함으로써 주름을 생성하고, 이를 통해 미적인 효과를 낼 수 있다. 일측 재봉선택선의 길이와 타측 재봉선택선의 길이가 다르더라도 원단의 늘어남 정도에 따라 주름이 생기지 않을 수 있다.

【0041】일 실시예에 있어서, 일측 재봉가능선 또는 타측 재봉가능선은 직선, 곡선, 다중 분기선 그리고 다각형 및 원을 포함하는 도형 중 적어도 하나일 수 있다. 패턴의 형태가 원인 경우 원 테두리 전체를 재봉하면 일측 재봉가능선 또는 타측 재봉가능선은 원이다. 원의 일부를 재봉하면 일측 재봉가능선 또는 타측 재봉가능선은 곡선이다. 일측 재봉가능선 또는 타측 재봉가능선의 다양한 형태

는 도 12에 대한 설명과 함께 후술한다.

【0042】 일 양상에 있어서, 디지털 의상 객체 생성 방법은 타측 재봉선택선 설정 단계(S20)가 시작점 입력 단계(S21)와 끝점 입력 단계(S30) 사이에 커서 위치 검출 단계(S22) 및 끝점 후보 표시 단계(S23)를 더 포함할 수 있다.

【0043】 일 실시예에 있어서, 커서 위치 검출 단계(S22)는 현재 커서 위치를 검출한다.

【0044】 일 실시예에 있어서, 끝점 후보 표시 단계(S23)는 입력된 시작점으로부터 상기 검출된 현재 커서 위치와 최단 거리이면서 입력된 시작점을 포함하는 타측 재봉가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보로 산출하고 이를 표시한다. 끝점 후보가 표시됨에 따라 패턴 상에서 일측 재봉선택선의 길이와 같은 길이를 가지도록 타측 재봉선택선의 끝점을 쉽게 선택할 수 있다. 끝점 후보 표시 단계(S23)에 대한 부가적인 설명은 도 6에 대한 설명과 함께 후술한다.

【0045】 일 양상에 있어서, 타측 재봉선택선 설정 단계(S20)는 커서 위치 이동 단계(S24, S25)를 더 포함할 수 있다. 일 실시예에 있어서 커서 위치 이동 단계는 현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하이면 커서

가 산출된 끝점 후보 위치로 이동(S25)하여 표시된다. 예를 들어, 기준치는 15픽셀(Px, Pixel)이다. 기준치는 사용자가 자유롭게 설정할 수 있다. 커서가 끝점 후보 위치 근처에 위치하는 경우 커서가 끝점 후보상으로 이동하여, 일측 재봉선택선과 같은 길이를 가지는 타측 재봉선택선을 쉽게 설정할 수 있다. 커서 위치 이동 단계(S24, S25)에 대한 부가적인 설명은 도 7에 대한 설명과 함께 후술한다.

【0046】 일 양상에 있어서, 타측 재봉선 설정 단계(S31)는 길이 표시 단계(S26)를 더 포함할 수 있다. 일 실시예에 있어서, 길이 표시 단계(S26)는 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이 중 적어도 하나를 산출하여 숫자로 표시한다. 커서의 위치가 이동됨에 따라 바뀌는 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이를 지속적으로 확인할 수 있다. 길이 표시 단계(S26)에 대한 추가적인 설명은 도 7에 대한 설명과 함께 후술한다.

【0047】 일 양상에 있어서, 디지털 의상 객체 생성 방법은 차이값 표시 단계(S27)를 더 포함할 수 있다. 일 실시예에 있어서, 차이값 표시 단계(S27)는 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 숫자로 표시한다. 사용자는 일측 재봉선택선의 길이, 타측 재봉가능선을 따라 입력된 시작점

및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이를 확인할 수 있고, 이에 나아가, 일측 재봉선택선의 길이와 차이값 표시 단계(S27)는 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 확인할 수 있다. 사용자는 차이값을 확인하여 일측 재봉선택선과 타측 재봉선택선의 길이가 같도록 설정할 수 있다. 차이값 표시 단계(S27)에 대한 부가적인 설명은 도7, 도 8 및 도 9의 설명과 함께 후술한다.

【0048】 일 양상에 있어서, 타측 재봉선택선 설정 단계(S20)는 경고 표시 단계(S28, S29)를 포함할 수 있다. 일 실시예에 있어서, 경고 표시 단계(S28, S29)는 차이값이 기준치 이상이면 경고 표시를 한다. 일 실시예에 있어서, 경고 표시 단계(S28, S29)는 차이값이 기준치 이상이면 산출된 길이 및 차이값의 색깔을 바꾸어 경고 표시(S29)를 한다. 타측 재봉선택선이 일측 재봉선택선에 비해 짧거나 길면 재봉시 주름이 생길 수 있다. 즉, 일측 재봉선택선과 타측 재봉선택선을 재봉시 주름이 생길 수 있는 경우 재봉시 주름이 생기지 않는 경우의 차이값의 색깔과 다른 색깔로 차이값의 색깔을 표시할 수 있다. 예를 들어 빨간색으로 표시 될 수 있다. 차이값이 기준치 이상인 경우 차이값을 빨간색으로 표시하여 경고 표시를 할 수 있다. 일측 재봉선택선과 타측 재봉선택선의 재봉후 드레이핑 과정을 거쳐 생성된 3D 패턴에 주름이 생기는지 여부는 봉제 방식, 원단 종류 등에 따라 달라질 수 있다. 잘 늘어나는 니트(Knit) 및 Chiffon은 일측 재봉선택선과 타측 재봉

선택선의 길이 차이가 1인치(Inch) 범위 내인 경우에는 주름이 생기지 않을 수 있다. 잘 늘어나지 않는 면 및 데임은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1센티미터(Cm) 범위 내인 경우에 주름이 생기지 않을 수 있다.

【0049】 일 양상에 있어서, 비 휘발성 기록 매체는 디지털 의상 객체 생성 방법이 구현된 컴퓨터 프로그램을 저장할 수 있다. 디지털 의상 객체 생성 방법은 다운로드 가능한 컴퓨터 프로그램으로 제작 되어 컴퓨터가 읽을 수 있는 비 휘발성 기록 매체에 저장될 수 있으며, 컴퓨터가 읽을 수 있는 기록 매체의 예로는 ROM, RAM, CD-ROM, 자기 테이프, 플로피디스크, 광 데이터 저장장치 등이 있으며, 또한 캐리어 웨이브(예를 들어 인터넷을 통한 전송)의 형태로 구현되는 것도 포함한다.

【0050】 도 3은 일측 재봉선택선 설정 단계(S10)를 설명하기 위한 일 예를 도시한다. 재봉될 두 개의 패턴(303, 304), 일측 재봉선택선의 시작점(302) 및 커서(301)가 도 3에 도시되어 있다. 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력 하는 위치인 커서는 패턴(303) 상의 한 점(302)에 위치하고 있다. 커서가 패턴 상의 어느 한 점을 선택하면, 선택된 점은 일측 재봉선택선의 시작점이 될 수 있다. 즉, 패턴 상의 재봉 가능선에서 어느 한 점을 입력 장치로 선택하면, 선택된 점은 일측 재봉선택선의 시작점이 될 수 있다. 도 3에서 패턴 상의 재봉가능선은 점과 점 사이에 있는 선들이다. 도 3에서는 재봉가능선이 패턴의 외곽선으로만 설정되어 있지만 이에 한정되는 것은 아니고 패턴 상의 존재하는 두 점을 잇는 임

의의 선을 재봉가능선으로 설정할 수 있다. 커서가 어느 하나의 패턴 상에 존재하는 재봉가능선에 존재 하지 않는데, 현재 커서 위치를 시작점으로 선택한 경우 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점으로 할 수 있다.

【0051】 도 4는 일측 재봉선택선 설정 단계(S10)를 설명하기 위한 다른 예를 도시한다. 재봉될 두 개의 패턴(303, 304), 일측 재봉선택선의 시작점(302), 일측 재봉선택선의 끝점(305), 일측 재봉선택선(305), 일측 재봉선택선의 길이(308) 및 커서(301)가 도 4에 도시되어 있다. 도 3과 같이 일측 재봉선택선의 시작점(302)을 선택한 후 사용자가 원하는 일측 재봉 가능선상의 임의의 점을 끝점(305)으로 선택하여 일측 재봉선택선(306)을 설정 할 수 있다. 일측 재봉선택선(306)의 끝점 선택시 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력하는 위치인 커서가 어느 하나의 2D패턴상에 존재하는 재봉 가능선에 존재 하지 않는데, 현재 커서 위치를 선택한 경우 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 끝점(305)으로 할 수 있다. 사용자가 일측 재봉 가능선의 시작점을 입력 후 시작점으로부터 커서에서 최단 거리에 있는 재봉 가능선 상의 점을 연결하는 선을 길이를 표시할 수 있다. 커서의 이동에 따라 시작점으로부터 커서에서 최단 거리에 있는 재봉 가능선 상의 점을 연결하는 선을 길이는 계속 바뀐다. 일측 재봉선택선의 끝점(305)을 선택하면 일측 재봉선택선의 길이(308)가 정해 진다. 일측 재봉 선택선의 길이(308)의 단위는 센티미터(Cm), 밀리미터(Mm), 미터(M), 인치(Inch) 등

사용자가 다양하게 설정할 수 있다.

【0052】 도 5는 타측 재봉선택선 설정 단계(S20)를 설명하기 위한 일 예를 도시한다. 재봉될 두 개의 패턴(303, 304), 일측 재봉선택선의 시작점(302), 일측 재봉선택선의 끝점(305), 일측 재봉선택선(305), 일측 재봉선택선의 길이(308), 타측 재봉선택선의 시작점(309) 및 커서(301)가 도 5에 도시되어 있다. 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력 하는 위치인 커서는 패턴(304) 상의 한 점(309)에 위치하고 있다. 커서가 패턴 상의 어느 한 점을 선택하면, 선택된 점은 타측 재봉선택선의 시작점이 될 수 있다. 즉, 패턴 상의 타측 재봉 가능선에서 어느 한 점을 입력 장치로 선택하면, 선택된 점은 타측 재봉선택선의 시작점이 될 수 있다. 도 5에서 패턴 상의 재봉가능선은 점과 점 사이에 있는 선들이다. 도 5에서는 재봉가능선이 패턴의 외곽선으로만 설정되어 있지만 이에 한정되는 것은 아니고 패턴 상의 존재하는 두 점을 잇는 임의의 선을 재봉 가능선으로 설정할 수 있다. 커서가 어느 하나의 패턴 상에 존재하는 재봉 가능선 상에 존재 하지 않는데, 현재 커서 위치를 타측 재봉선택선의 시작점으로 선택한 경우 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점으로 할 수 있다.

【0053】 도 6은 끝점 후보 표시 단계(S23)를 설명하기 위한 일 예를 도시한다. 재봉될 두 개의 패턴(303, 304), 일측 재봉선택선의 시작점(302), 일측 재봉선택선의 끝점(305), 일측 재봉선택선(305), 일측 재봉선택선의 길이(308), 타측 재

봉선택선의 시작점(309), 끝점 후보(310) 및 커서(301)가 도 6에 도시되어 있다. 타측 재봉선택선의 시작점(309)이 입력되면 입력된 시작점(309)으로부터 상기 검출된 현재 커서 위치(301)와 최단 거리이면서 입력된 시작점(309)을 포함하는 타측 재봉가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보(310)가 표시된다. 현재 커서(301)는 타측 재봉선택선의 시작점(309)을 포함하는 타측 재봉가능선(311, 312) 중 312에 해당하는 타측 재봉가능선에 더 가까이 있어 끝점 후보(310)는 타측 재봉가능선(312)에 생성된다. 만약 커서가 타측 재봉가능선(311)에 더 가까이 있다면, 끝점 후보(310)는 타측 재봉가능선(311)에 생길 수 있다.

【0054】 도 7은 커서 위치 이동 단계(S24, S25)를 설명하기 위한 일 예를 도시한다. 재봉될 두 개의 패턴(303, 304), 일측 재봉선택선의 시작점(302), 일측 재봉선택선의 끝점(305), 일측 재봉선택선(305), 일측 재봉선택선의 길이(308), 타측 재봉선택선의 시작점(309), 끝점 후보(310), 타측 재봉선택선의 길이(313), 차이값(314) 및 커서(301)가 도 7에 도시되어 있다. 끝점 후보(310)와 기준치 이하 거리에 위치했던 커서는 끝점 후보(310) 위치로 이동하여 끝점 후보(310)상에 위치하고 있다. 끝점 후보(310)가 표시되고 커서가 일정 조건 하에서 끝점 후보(310) 위치로 이동하여 위치할 수 있어 일측 재봉선택선의 길이와 동일한 길이를 가지는 타측 재봉선택선을 용이하게 설정할 수 있다. 커서(301)의 위치가 이동되면, 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거

리인 점을 연결한 선의 길이도 그에 따라 변한다. 도 7에 도시된 것처럼 일측 재봉선택선의 길이 및 타측 재봉선택선의 길이가 동일함을 확인 할 수 있다. 즉, 도 7에서 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값(314)이 0으로 표시됨을 확인 할 수 있다.

【0055】 도 8은 차이값 표시 단계(S27) 및 경고 표시 단계(S28, S29)를 설명하기 위한 일 예를 도시한다. 커서(301), 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이(313) 및 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값(314)이 도 9에 도시되어 있다. 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이(313) 및 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값(314)은 커서(301)의 이동에 따라 변동한다. 도 7에 도시된 차이값은 예를 들어 파란색으로 표시된다. 일측 재봉선택선과 타측 재봉선택선을 재봉시 주름이 생기지 않는 경우 차이값이 파란색으로 표시 될 수 있다. 이에 반해, 도 8에 도시된 차이값은 예를 들어 빨간색으로 표시된다. 도 8에서는 타측 재봉선택선이 일측 재봉선택선에 비해 짧기에 재봉시 주름이 생길 수 있다. 즉, 일측 재봉선택선과 타측 재봉선택선

을 재봉시 주름이 생길 수 있는 경우 차이값이 빨간색으로 표시 될 수 있다. 차이값이 기준치 이상인 경우 차이값을 빨간색으로 표시하여 경고 표시를 할 수 있다. 일측 재봉선택선과 타측 재봉선택선의 재봉후 드레이핑 과정을 거쳐 생성된 3D 패턴에 주름이 생기는지 여부는 봉제 방식, 원단 종류 등에 따라 달라 질 수 있다. 잘 늘어나는 니트(Knit) 및 Chiffon은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1인치(Inch) 범위 내인 경우에는 주름이 생기지 않을 수 있다. 잘 늘어나지 않는 면 및 데님은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1센티미터(Cm) 범위 내인 경우에 주름이 생기지 않을 수 있다.

【0056】 도 9는 차이값 표시 단계(S27) 및 경고 표시 단계(S28, S29)를 설명하기 위한 다른 예를 도시한다. 커서(301), 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이(313) 및 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값(314)이 도 9에 도시되어 있다. 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이(313) 및 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값(314)은 커서(301)의 이동에 따라 변동한다. 도 7에 도시된 차이값은 예를 들어 파란색으로 표시된다. 일측 재봉선택선과 타측 재봉선택선을 재봉시 주름이 생기지 않는 경우

차이값이 파란색으로 표시 될 수 있다. 이에 반해, 도 9에 도시된 차이값은 예를 들어 빨간색으로 표시된다. 도 9에서는 타측 재봉선택선이 일측 재봉선택선에 비해 길기에 재봉시 주름이 생길 수 있다. 즉, 일측 재봉선택선과 타측 재봉선택선을 재봉시 주름이 생길 수 있는 경우 차이값이 빨간색으로 표시 될 수 있다. 차이값이 기준치 이상인 경우 차이값을 빨간색으로 표시하여 경고 표시를 할 수 있다. 일측 재봉선택선과 타측 재봉선택선의 재봉후 드레이핑 과정을 거쳐 생성된 3D 패턴에 주름이 생기는지 여부는 봉제 방식, 원단 종류 등에 따라 달라 질 수 있다. 잘 늘어나는 니트(Knit) 및 Chiffon은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1인치(Inch) 범위 내인 경우에는 주름이 생기지 않을 수 있다. 잘 늘어나지 않는 면 및 데임은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1센티미터(Cm) 범위 내인 경우에 주름이 생기지 않을 수 있다.

【0057】 도 10은 2D 패턴 및 드레이핑 전의 3D 패턴을 도시한다. 2D 패턴 화면(402)에 있는 2D 패턴 상에 일측 재봉선택선 및 타측 재봉선택선을 설정하면 3D 화면(401)에 있는 3D 패턴에도 2D 패턴에 대응되는 위치에 일측 재봉선택선 및 타측 재봉선택선이 설정 된다.

【0058】 도 11은 2D 패턴 및 드레이핑 후의 3D 패턴을 도시한다. 2D 패턴 화면(402)에 있는 2D 패턴 상에 일측 재봉선택선 및 타측 재봉선택선을 설정하고 재봉 명령을 하면 재봉 명령에 따라 상기 일측 재봉선택선과 타측 재봉선택선을 재봉 처리하여 3D의상 객체를 생성한다. 3D 화면(401)에 도시된 디지털 의상은 2D 패턴

화면(402)에 있는 2D 패턴 상에 설정된 일측 재봉선택선 및 타측 재봉선택선을 재봉하여 생성된 결과이다.

【0059】 도 12는 일측 재봉가능선 및 타측 재봉가능선의 다양한 형태를 도시한다. 도 12의 a, b, c, d 각각은 한 쌍의 일측 재봉선택선 및 타측 재봉선택선을 도시한다.

【0060】 도 12의 a는 사각형 형태의 패턴을 재봉하는 것으로 일측 재봉선택선(1201) 및 타측 재봉선택선(1202)은 사각형의 외곽선이다. b의 경우 일측 재봉선택선(1203)은 사각형의 외곽선에 위치하고 타측 재봉선택선(1204)은 사각형 내부에 위치한다. 전술한 것처럼 재봉선택선은 패턴 상에 존재 할 수 있는 두 점을 연결하는 선일 수 있기에 패턴 내부에 위치할 수 있다. 타측 재봉가능선(1209)은 사용자가 설정한 것이고, 도 12에서는 두 개의 타측 재봉가능선 중 사용자는 타측 재봉가능선(1204)을 타측 재봉선택선(1204)으로 선택한 예를 도시한다. c의 경우 일측 재봉선택선은 사각형의 외곽선에 위치하고 타측 재봉선택선은 원 내부에 위치한다. c에 도시된 것처럼 일측 재봉가능선 및 타측 재봉가능선이 다른 형태, 예를 들어 직선과 곡선 형태라도 재봉이 이루어 질 수 있다. d의 경우 일측 재봉선택선은 사각형의 외곽선에 위치하고 타측 재봉선택선은 도형 외곽선이다. 전술한 것처럼, 일측 재봉가능선 및 타측 재봉가능선의 형태가 서로 다르더라도 재봉이 가능하고 d의 경우 타측 재봉선택선이 도형 내부에 위치하더라도 재봉이 이루어 질 수 있다.

【0061】 도 13은 일 실시예에 따른 디지털 의상 객체 생성 장치의 구성을 도시한다.

【0062】 일 양상에 따른 컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 디지털 의상 객체 생성 장치에 있어서, 디지털 의상 객체 생성 장치는 사용자 인터페이스부(100), 드레이핑부(200)를 포함한다.

【0063】 일 양상에 있어서, 사용자 인터페이스부(100)는 일측 재봉선택선 설정부(110) 및 타측 재봉선택선 설정부(120)를 포함할 수 있다. 사용자는 사용자 인터페이스부(100)를 통해 일측 재봉선택선 및 타측 재봉선택선을 설정 할 수 있다. 사용자 인터페이스부(100)는 하드웨어 측면에서 키보드, 마우스, 터치 펜 등의 입력 장치를 포함할 수 있다. 사용자 인터페이스부(100)는 소프트웨어 측면에서 디지털 의상 객체 생성 방법이 구현된 컴퓨터 프로그램일 수 있다.

【0064】 일 실시예에 있어서, 일측 재봉선택선 설정부(110)는 패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정한다. 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정한다. 일측 재봉선택선 설정부(110)는 재봉될 두 개의 선 중 하나의 선인 일측 재봉선택선을 입력할 수 있다. 일측 재봉선택선을 입력 하는 방법은 마우스, 터치 펜, 키보드 등의 입력 장치를 통해 직접 재봉하려는 부분을 선택하거나, 컴퓨터 프로그램을 통하여 어느 하나의 패턴 상에 선택 가능한 외곽선을 제시하여 사용자가 선택하게 할 수도 있다.

【0065】 입력 장치를 통해 직접 재봉하려는 일측 재봉선택선을을 선택할 경우, 일측 재봉선택선의 시작점과 끝점을 입력하여 선택할 수 있다. 마우스, 터치펜과 같은 입력 장치가 화면 내에서 출력하는 위치인 커서가 어느 하나의 패턴 상에 존재하는 재봉가능선에 존재 하지 않는데, 현재 커서 위치를 시작점 또는 끝점으로 선택한 경우 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점 또는 끝점으로 할 수 있다. 일측 재봉선택선 설정부(110)에 대한 추가적인 설명은 도 3 및 도 4에서 전술하였다.

【0066】 일 양상에 있어서, 타측 재봉선택선 설정부(120)는 시작점 입력부(121), 끝점 입력부(122) 및 설정부를 포함할 수 있다. 타측 재봉선택선은 일측 재봉선택선과 재봉될 선으로 이에 대한 구체적인 설명은 후술한다.

【0067】 일 양상에 있어서, 드레이핑부(200)는 재봉 명령에 따라 상기 일측 재봉선택선과 타측 재봉선택선을 재봉 처리하여 디지털 의상 객체를 생성한다. 드레이핑부(200)에서는 패턴이 아바타 모델 주위로 배치되면서 사용자가 설정한 재봉선택선에 따라 재봉된다. 드레이핑부(200)에 대한 구체적인 설명은 도 10 및 도 11에서 전술하였다.

【0068】일 실시예에 있어서, 시작점 입력부(121)는 일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는다. 타측 재봉선택선의 시작점은 마우스, 터치 팬, 키보드 등의 입력 장치를 통해 직접 선택될 수 있다. 마우스, 터치 펜과 같은 입력 장치가 화면 내에서 출력하는 위치인 커서가 어느 하나의 패턴 상에 존재하는 재봉가능선에 존재 하지 않는데, 현재 커서 위치를 시작점으로 선택한 경우, 현재 커서로부터 가장 가까운 거리에 있는 재봉가능선 상의 점을 시작점으로 할 수 있다. 시작점 입력부(121)에 대한 추가적인 설명은 도 5 에서 전술하였다.

【0069】일 실시예에 있어서, 끝점 입력부(122)는 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는다. 현재 커서의 위치가 복수의 타측 재봉가능선 중 시작점이 입력된 타측 재봉가능선과 가장 가까운 경우, 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는다. 현재 커서의 위치가 시작점이 입력된 타측 재봉가능선이 아닌 다른 타측 재봉가능선과 더 가까이 있는데 포인팅 선택 이벤트가 발생한 경우, 끝점 입력이 이루어 지지 않을 수 있다. 일측 재봉선택선의 길이와 동일한 길이를 갖도록 타측 재봉선택선의 끝점을 선택할 수 있지만, 이에 한정되는 것은 아니고 일측 재봉선택선의 길이와 다른 길이를 가지도록 타측 재봉선택선의 끝점을 선택할 수도 있다.

【0070】일 실시예에 있어서, 설정부는 입력된 시작점으로부터 입력된 끝점까지의 타측 재봉가능선 구간을 타측 재봉선택선으로 설정한다. 일측 재봉선택선과 타측 재봉선택선의 길이가 같은 경우 디지털 의상에 주름 없이 재봉이 이루어질 수 있다. 의도적으로 일측 재봉선택선의 길이와 타측 재봉선택선의 길이를 다르게 함으로써 주름을 생성하고, 이를 통해 미적인 효과를 낼 수 있다. 일측 재봉선택선의 길이와 타측 재봉선택선의 길이가 다르더라도 원단의 늘어남 정도에 따라 주름이 생기지 않을 수 있다.

【0071】일 실시예에 있어서, 일측 재봉가능선 또는 타측 재봉가능선은 직선, 곡선, 다중 분기선 그리고 다각형 및 원을 포함하는 도형 중 적어도 하나일 수 있다. 패턴의 형태가 원인 경우 원 테두리 전체를 재봉하면 일측 재봉가능선 또는 타측 재봉가능선은 원이다. 원의 일부를 재봉하면 일측 재봉가능선 또는 타측 재봉가능선은 곡선이다. 일측 재봉가능선 또는 타측 재봉가능선의 다양한 형태는 도 12에서 전술 하였다.

【0072】일 양상에 있어서, 디지털 의상 객체 생성 장치는 커서 위치 검출부(210) 및 끝점 후보 표시부(220)를 더 포함할 수 있다.

【0073】일 실시예에 있어서, 커서 위치 검출부(210)는 현재 커서 위치를 검출한다.

【0074】 일 실시예에 있어서, 끝점 후보 표시부(220)는 입력된 시작점으로부터 상기 검출된 현재 커서 위치와 최단 거리이면서 입력된 시작점을 포함하는 타측 재봉가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보로 산출하고 이를 표시한다. 끝점 후보가 표시됨에 따라 패턴 상에서 일측 재봉선택선의 길이와 같은 길이를 가지도록 타측 재봉선택선의 끝점을 쉽게 선택할 수 있다. 끝점 후보 표시부(220)에 대한 부가적인 설명은 도 6에서 전술하였다.

【0075】 일 양상에 있어서, 디지털 의상 객체 생성 장치는 커서 위치 이동부(231)를 더 포함할 수 있다. 일 실시예에 있어서 커서 위치 이동부(231)는 현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하이면 커서가 산출된 끝점 후보 위치로 이동하여 표시된다. 예를 들어, 기준치는 15픽셀(Px, Pixel)이다. 기준치는 사용자가 자유롭게 설정할 수 있다. 커서가 끝점 후보 위치 근처에 위치하는 경우 커서가 끝점 후보상으로 이동하여, 일측 재봉선택선과 같은 길이를 가지는 타측 재봉선택선을 쉽게 설정할 수 있다. 커서 위치 이동부(231)에 대한 부가적인 설명은 도 7에서 전술하였다.

【0076】 일 양상에 있어서, 디지털 의상 객체 생성 장치는 길이 표시부(240)를 더 포함할 수 있다. 일 실시예에 있어서, 길이 표시부(240)는 일측 재봉선택

선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이 중 적어도 하나를 산출하여 표시한다. 커서의 위치가 이동됨에 따라 바뀌는 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이를 지속적으로 확인할 수 있다. 길이 표시부(240)에 대한 추가적인 설명은 도 7에서 전술하였다.

【0077】일 양상에 있어서, 디지털 의상 객체 생성 장치는 차이값 표시부(250)를 더 포함할 수 있다. 일 실시예에 있어서, 차이값 표시부(250)는 일측 재봉선택선의 길이와 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 표시한다. 사용자는 일측 재봉선택선의 길이, 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이를 확인할 수 있고, 이에 나아가, 일측 재봉선택선의 길이와 차이값 표시부(250)는 타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 확인할 수 있다. 사용자는 차이값을 확인하여 일측 재봉선택선과 타측 재봉선택선의 길이가 같도록 설정할 수 있다. 차이값 표시부(250)에 대한 부가적인 설명은 도7, 도 8 및 도 9에 대한 설명에서 전술하였다.

【0078】일 양상에 있어서, 디지털 의상 객체 생성 장치는 경고 표시부(260)를 포함할 수 있다. 일 실시예에 있어서, 경고 표시부(260)는 차이값이 기준치 이상이면 경고 표시를 한다. 일 실시예에 있어서, 경고 표시부(260)는 차이값이 기준치 이상이면 산출된 길이 및 차이값의 색깔을 바꾸어 경고 표시를 한다. 타측 재봉선택선이 일측 재봉선택선에 비해 짧거나 길면 재봉시 주름이 생길 수 있다. 즉, 일측 재봉선택선과 타측 재봉선택선을 재봉시 주름이 생길 수 있는 경우 재봉시 주름이 생기지 않는 경우의 차이값의 색깔과 다른 색깔로 차이값의 색깔을 표시할 수 있다. 예를 들어 빨간색으로 표시 될 수 있다. 차이값이 기준치 이상인 경우 차이값을 빨간색으로 표시하여 경고 표시를 할 수 있다. 일측 재봉선택선과 타측 재봉선택선의 재봉후 드레이핑 과정을 거쳐 생성된 3D 패턴에 주름이 생기는지 여부는 봉제 방식, 원단 종류 등에 따라 달라 질 수 있다. 잘 늘어나는 니트(Knit) 및 Chiffon은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1인치(Inch) 범위 내인 경우에는 주름이 생기지 않을 수 있다. 잘 늘어나지 않는 면 및 데임은 일측 재봉선택선과 타측 재봉선택선의 길이 차이가 1센티미터(Cm) 범위 내인 경우에 주름이 생기지 않을 수 있다.

【0079】이상에서 본 발명을 첨부된 도면을 참조하는 실시예들을 통해 설명하였지만 이에 한정되는 것은 아니며, 이들로부터 당업자라면 자명하게 도출할 수 있는 다양한 변형예들을 포괄하도록 해석되어야 한다. 특허청구범위는 이러한 변형예들을 포괄하도록 의도되었다.

【부호의 설명】

【0080】 100: 사용자 인터페이스부

110: 일측 재봉선택선 설정부

120: 타측 재봉선택선 설정부

121: 시작점 입력부

122: 끝점 입력부

200: 드레이핑부

210: 커서 위치 검출부

220: 끝점 후보 표시부

231: 커서 위치 이동부

240: 길이 표시부

250: 차이값 표시부

260: 경고 표시부

【특허청구범위】

【청구항 1】

컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 컴퓨팅 장치에 의해 실행 가능한 디지털 의상 객체 생성 방법에 있어서,

패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정하는 일측 재봉선택선 설정 단계; 및

일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는 시작점 입력 단계, 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는 끝점 입력 단계, 상기 입력된 시작점으로부터 입력된 끝점까지의 타측 재봉가능선 구간을 타측 재봉선택선으로 설정하는 설정 단계를 포함하는 타측 재봉선택선 설정 단계; 를

포함하는 디지털 의상 객체 생성 방법.

【청구항 2】

제 1 항에 있어서, 일측 재봉가능선 또는 타측 재봉가능선은

직선, 곡선, 다중 분기선 그리고 다각형 및 원을 포함하는 도형 적어도 하나인 디지털 의상 객체 생성 방법.

【청구항 3】

제 1 항에 있어서, 상기 타측 재봉선택선 설정 단계가 시작점 입력 단계와 끝점 입력 단계 사이에:

현재 커서 위치를 검출하는 커서 위치 검출 단계, 입력된 시작점으로부터 상기 검출된 현재 커서 위치와 최단 거리이면서 입력된 시작점을 포함하는 타측 재봉 가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보로 산출하고 이를 표시하는 끝점 후보 표시 단계를 더 포함하는 디지털 의상 객체 생성 방법.

【청구항 4】

청구항 3에 있어서, 타측 재봉선택선 설정 단계는

현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하이면 커서가 산출된 끝점 후보 위치로 이동하여 표시되는 커서 위치 이동 단계; 를 더 포함하는 디지털 의상 객체 생성 방법.

【청구항 5】

제 3 항에 있어서, 타측 재봉선택선 설정 단계는

일측 재봉선택선의 길이와

타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이 중 적어도 하나를 산출하여 표시하는 길이 표시 단계; 를

더 포함하는 디지털 의상 객체 생성 방법.

【청구항 6】

제 3 항에 있어서, 타측 재봉선택선 설정 단계는

일측 재봉선택선의 길이와

타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 표시하는 차이값 표시 단계; 를

더 포함하는 디지털 의상 객체 생성 방법.

【청구항 7】

제 6 항에 있어서, 타측 재봉선택선 설정 단계는

차이값이 기준치 이상이면 경고 표시를 하는 경고 표시 단계; 를

더 포함하는 디지털 의상 객체 생성 방법.

【청구항 8】

제 7 항에 있어서, 경고 표시 단계는

차이값이 기준치 이상이면 산출된 길이 및 차이값의 색깔을 바꾸어 경고 표시를 하는 디지털 의상 객체 생성 방법.

【청구항 9】

제 1항에 따른 디지털 의상 객체 생성 방법이 구현된 컴퓨터 프로그램이 저장된 비 휘발성 기록 매체.

【청구항 10】

컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 디지털 의상 객체 생성 장치에 있어서,

패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정하는 일측 재봉선택선 설정부 및 타측 재봉선택선 설정부를 포함하는 사용자 인터페이스부; 를 포함하되

타측 재봉선택선 설정부는

일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는 시작점 입력부, 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단

거리인 점을 끝점으로 입력 받는 끝점 입력부를 포함하는

디지털 의상 객체 생성 장치.

【청구항 11】

제 10 항에 있어서, 일측 재봉가능선 또는 타측 재봉가능선은

직선, 곡선, 다중 분기선 그리고 다각형 및 원을 포함하는 도형 중 적어도 하나인 디지털 의상 객체 생성 장치.

【청구항 12】

제 10 항에 있어서, 디지털 의상 객체 생성 장치는

현재 커서 위치를 검출하는 커서 위치 검출부, 입력된 시작점으로부터 상기 검출된 현재 커서 위치와 최단 거리이면서 입력된 시작점을 포함하는 타측 재봉가능선을 따라 일측 재봉선택선의 길이와 같게 되는 점을 타측 재봉선택선의 끝점 후보로 산출하고 이를 표시하는 끝점 후보 표시부를 더 포함하는 디지털 의상 객체 생성 장치.

【청구항 13】

청구항 12에 있어서, 디지털 의상 객체 생성 장치는

현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하이면 커서

가 산출된 끝점 후보 위치로 이동하여 표시되는 커서 위치 이동부; 를 더 포함하는 디지털 의상 객체 생성 장치.

【청구항 14】

제 13 항에 있어서, 디지털 의상 객체 생성 장치는

일측 재봉선택선의 길이와

타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이 중 적어도 하나를 산출하여 표시하는 길이 표시부; 를

더 포함하는 디지털 의상 객체 생성 장치.

【청구항 15】

제 13 항에 있어서, 디지털 의상 객체 생성 장치는

일측 재봉선택선의 길이와

타측 재봉가능선을 따라 입력된 시작점 및 타측 재봉가능선에서 커서의 위치로부터 최단 거리인 점을 연결한 선의 길이의 차이값을 표시하는 차이값 표시부; 를

더 포함하는 디지털 의상 객체 생성 장치.

【청구항 16】

제 15 항에 있어서, 디지털 의상 객체 생성 장치는

차이값이 기준치 이상이면 경고 표시를 하는 경고 표시부; 를

더 포함하는 디지털 의상 객체 생성 장치.

【청구항 17】

제 16 항에 있어서, 경고 표시부는

차이값이 기준치 이상이면 산출된 길이 및 차이값의 색깔을 바꾸어 경고 표시를 하는 디지털 의상 객체 생성 장치.

제출 일자 : 2015-04-27

【요약서】

【요약】

컴퓨터 시뮬레이션 기술에 관련된 것으로, 보다 상세하게는 2D 의상 패턴들을 재봉 처리하여 디지털 의상 객체를 생성하는 시뮬레이션 기술에 관한 것이다.

본 발명은 자유 재봉시, 패턴상에서 선택된 선분의 길이와 같은 길이를 가지도록 재봉될 다른 선분의 길이를 쉽게 조절하게 함을 목적으로 한다.

일 양상에 따른, 컴퓨팅 요소와, 패턴 및 드레이핑(draping)된 디지털 의상 객체를 저장하는 저장 요소를 포함하는 컴퓨팅 장치에 의해 실행 가능한 디지털 의상 객체 생성 방법에 있어서, 디지털 의상 객체 생성 방법은 패턴 상의 일측 재봉가능선에서 재봉될 일측 재봉선택선을 입력 받아 일측 재봉선택선을 설정하는 일측 재봉선택선 설정 단계와 일측 재봉선택선과 재봉될 적어도 하나의 타측 재봉가능선에서 타측 재봉선택선의 시작점을 입력 받는 시작점 입력 단계, 포인팅 선택 이벤트 발생시, 상기 시작점이 입력된 타측 재봉가능선에서 포인팅 선택 이벤트가 발생한 위치로부터 최단 거리인 점을 끝점으로 입력 받는 끝점 입력 단계, 상기 입력된 시작점으로부터 입력된 끝점까지의 타측 재봉가능선 구간을 타측 재봉선택선으로 설정하는 설정 단계를 포함하는 타측 재봉선택선 설정 단계 및 재봉 명령에 따라 상기 일측 재봉선택선과 타측 재봉선택선을 재봉 처리하여 3D의상 객체를 생성하는 드레이핑 단계를 포함할 수 있다.

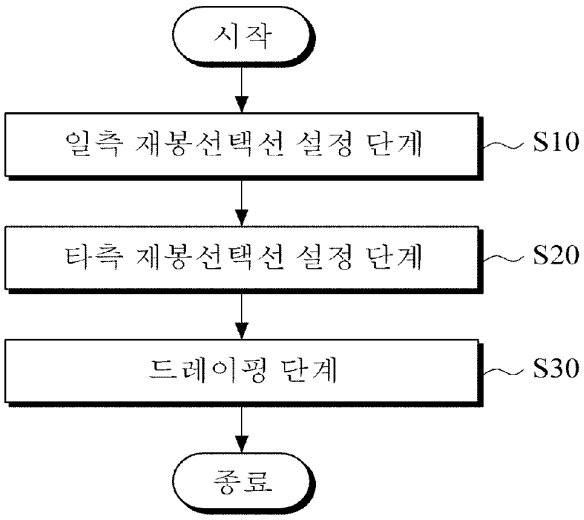
제출 일자 : 2015-04-27

【대표도】

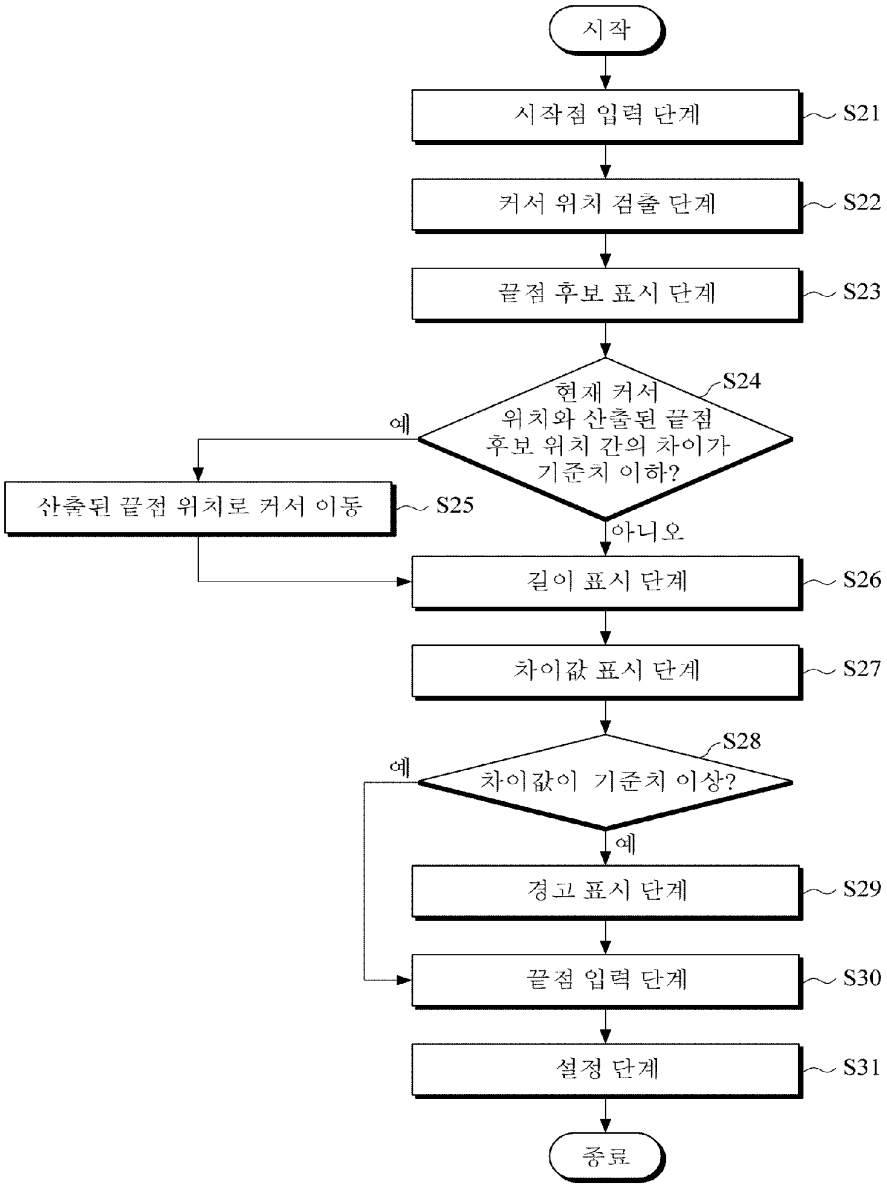
도 1

【도면】

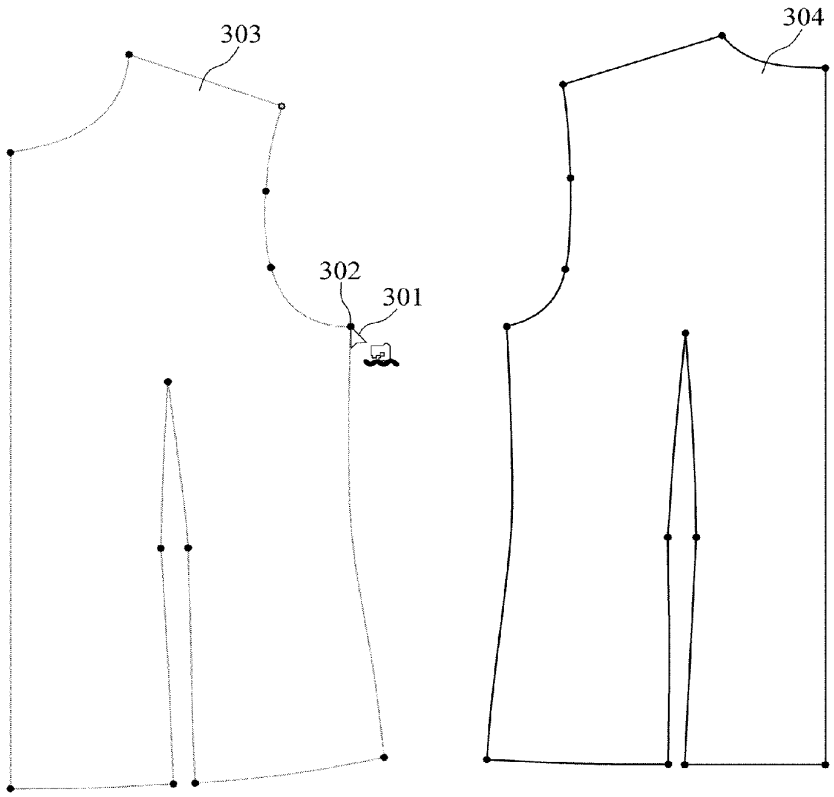
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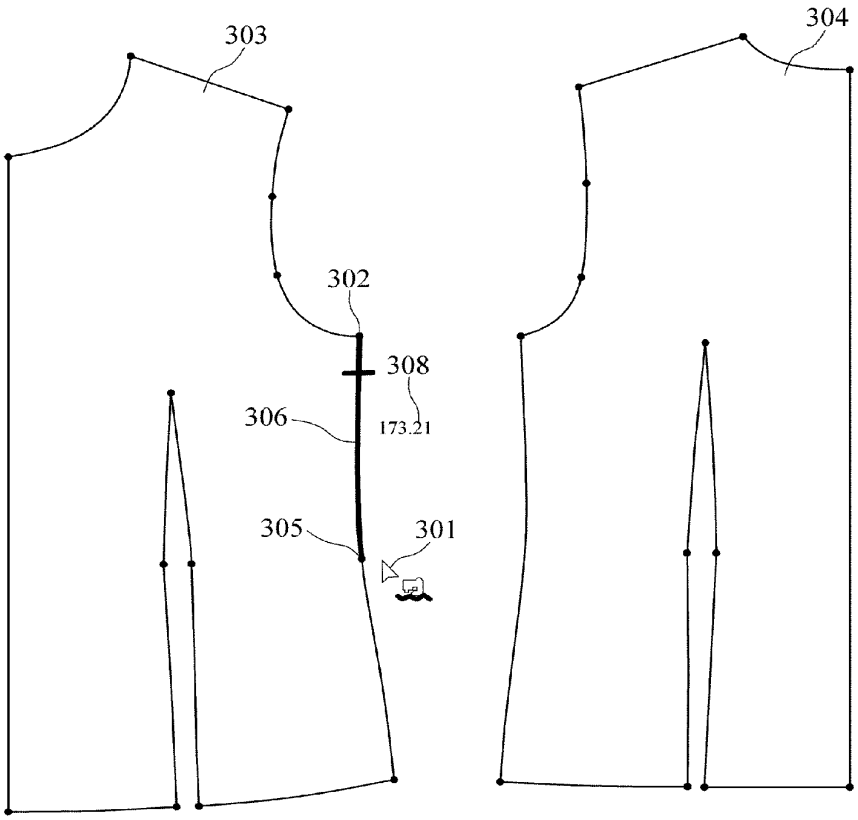
【도 2】


시작
시작점 입력 단계
S21
커서 위치 검출 단계
S22
끝점 후보 표시 단계
S23
현재 커서 위치와 산출된 끝점 후보 위치 간의 차이가 기준치 이하?
S24
예
산출된 끝점 위치로 커서 이동
S25
아니오
길이 표시 단계
S26
차이값 표시 단계
S27
차이값이 기준치 이상?
S28
예
경고 표시 단계
S29
끝점 입력 단계
S30
설정 단계
S31
종료

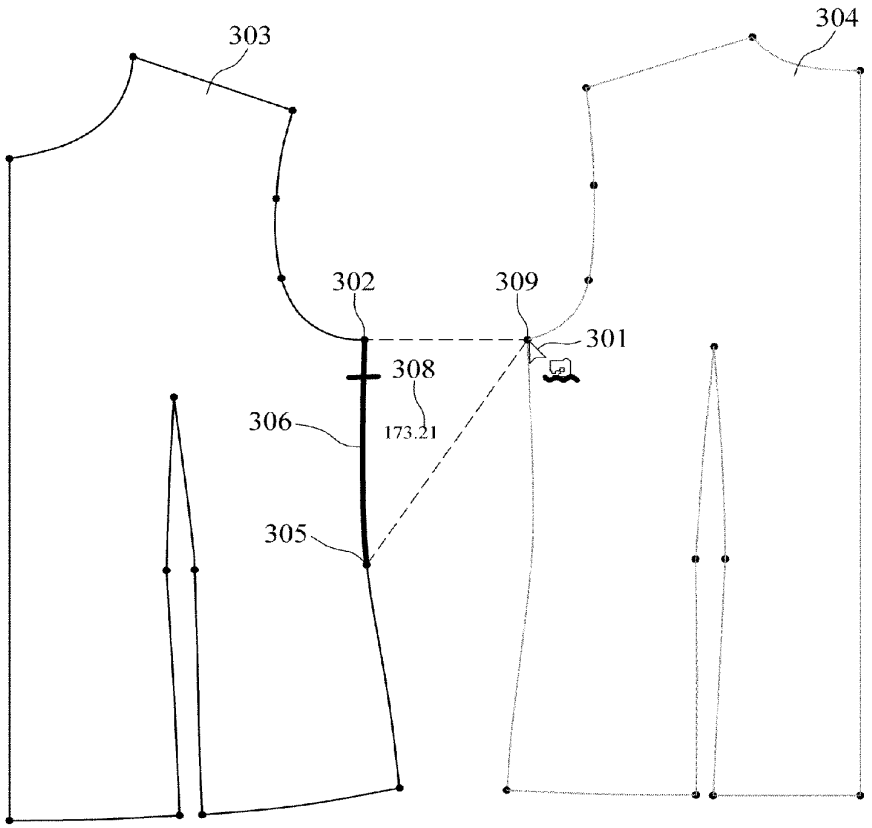
【도 3】



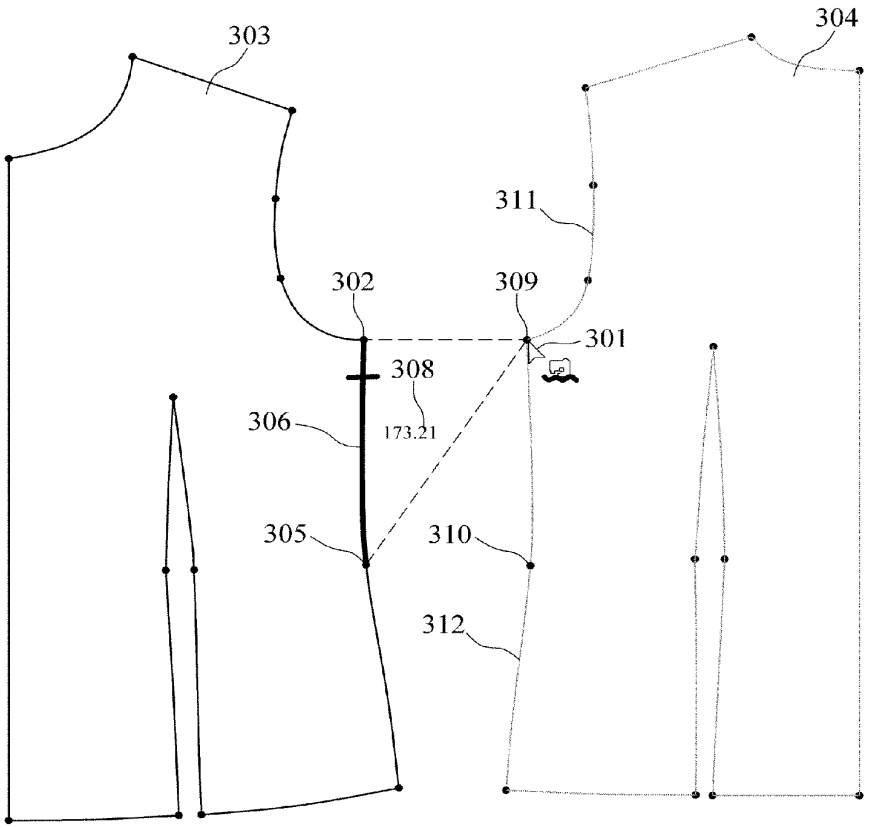
【도 4】



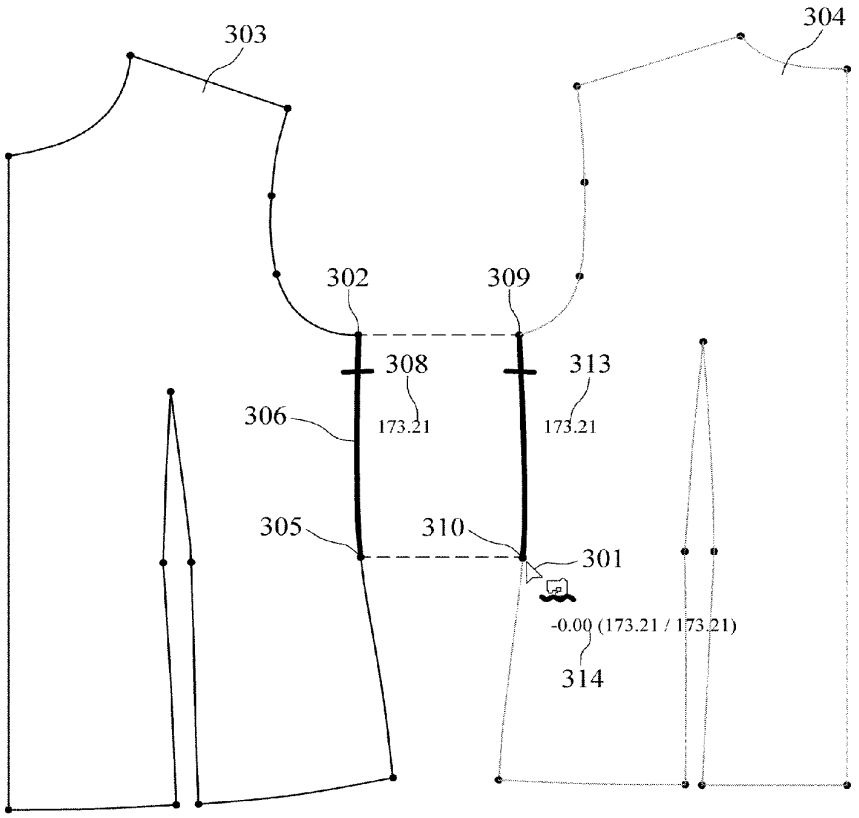
【도 5】



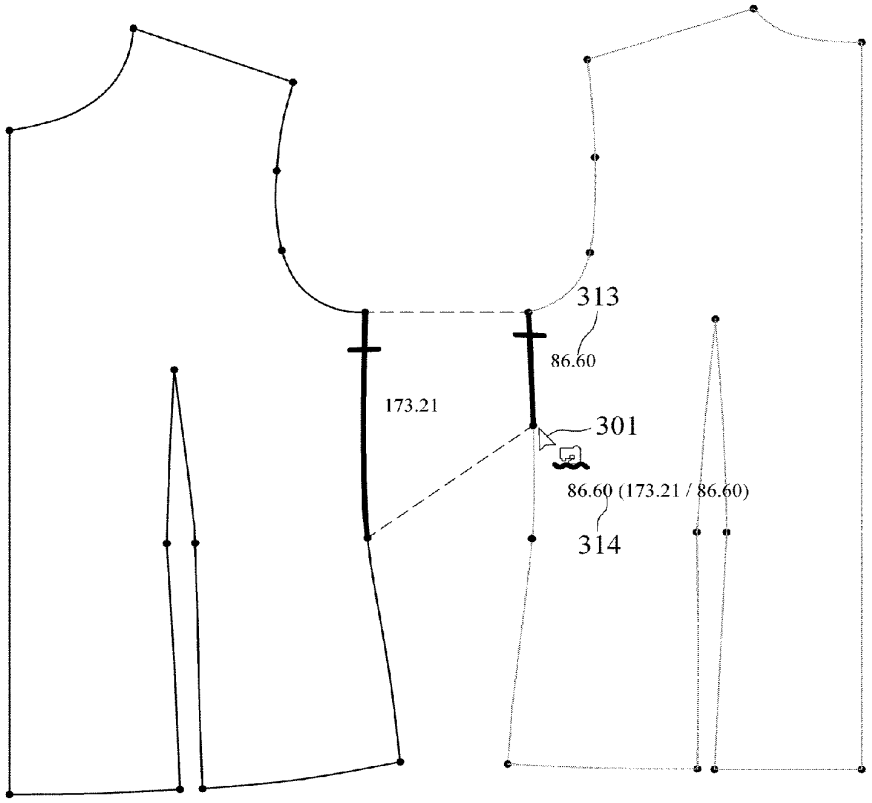
【도 6】



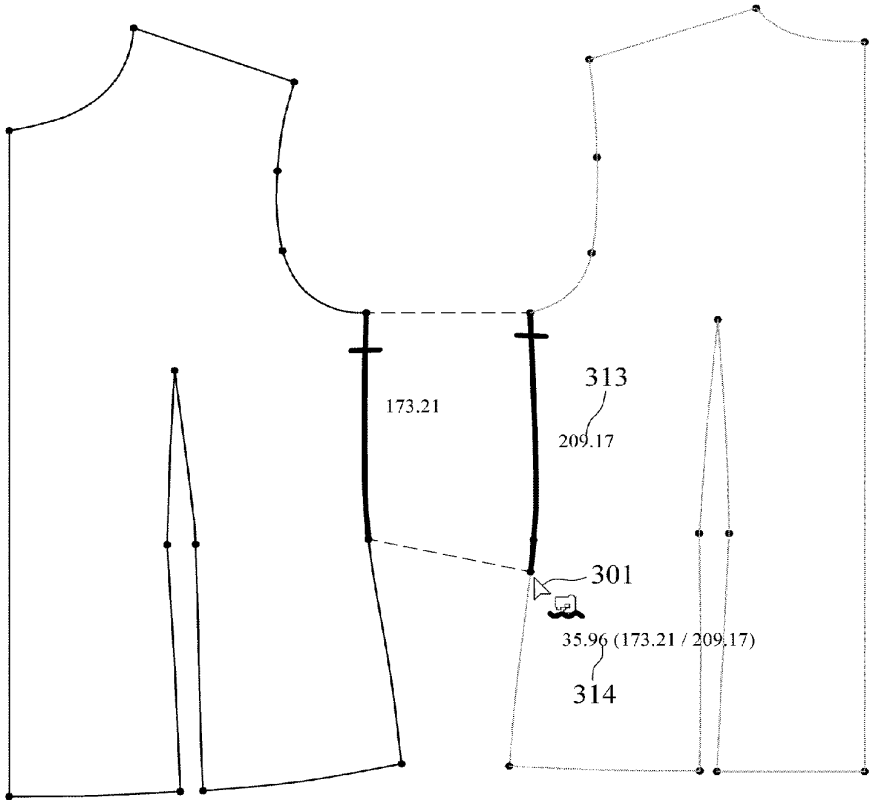
【도 7】


303
304
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173.21
173.21
305
310
301
-0.00 (173.21 / 173.21)
314

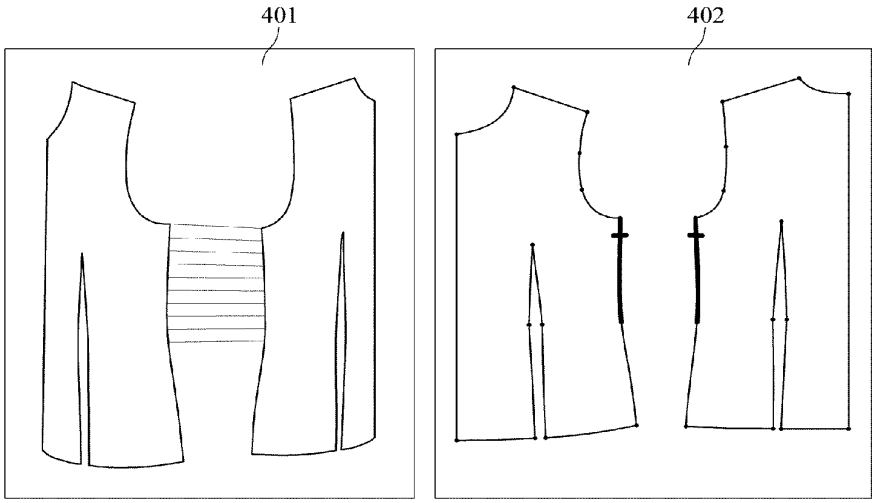
【도 8】



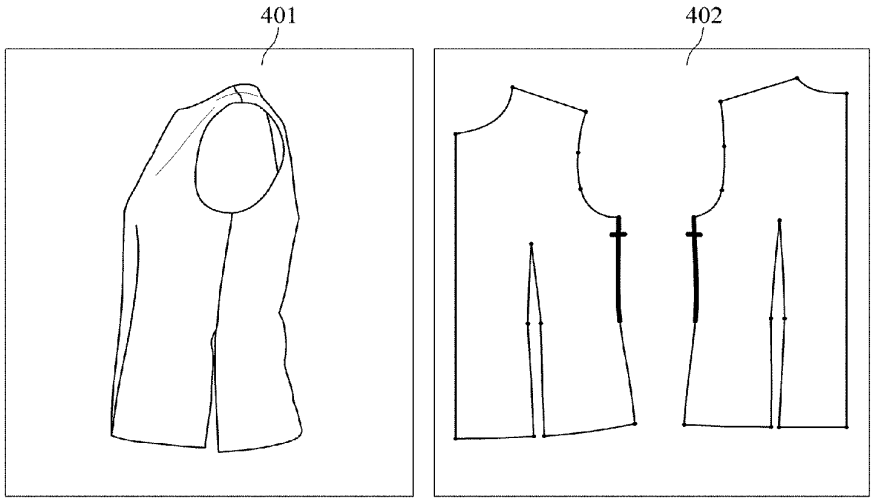
【도 9】



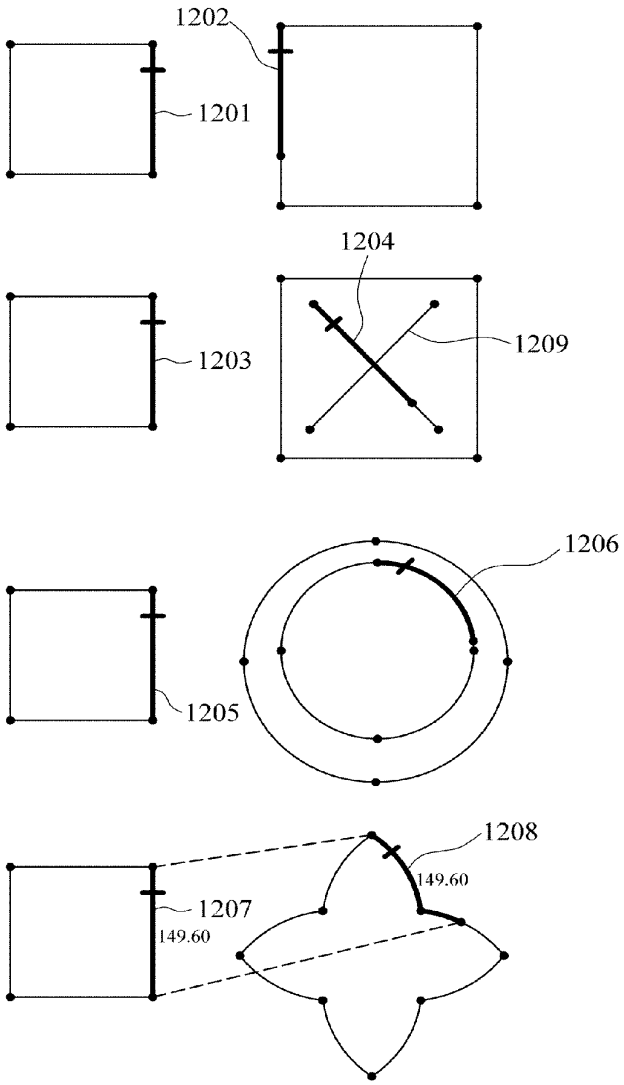
【도 10】



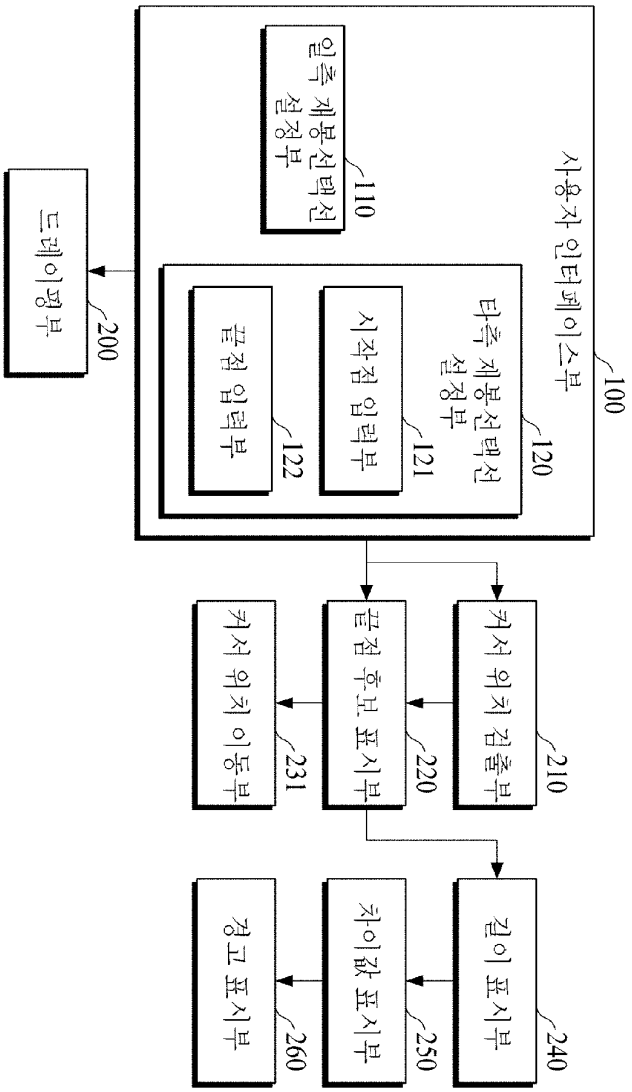
【도 11】



【도 12】



【도 13】


사용자 인터페이스부
100
타측 제봉선택선 설정부
120
시작점 입력부
121
끝점 입력부
122
일측 재봉선택선 설정부
110
드레이핑부
200
커서 위치 검출부
210
끝점 후보 표시부
220
커서 위치 이동부
231
길이 표시부
240
차이값 표시부
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경고 표시부
260

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/925,878	07/10/2020	2611	1720	304052.0001C1	17	2

CONFIRMATION NO. 1069

89980
NSIP LAW
P.O. Box 65745
Washington, DC 20035

FILING RECEIPT

OC000000118614309

Date Mailed: 07/22/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

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Kyoung Ae Bang, Seoul, KOREA, REPUBLIC OF;

Applicant(s)

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Assignment For Published Patent Application

CLO VIRTUAL FASHION INC., Seoul, KOREA, REPUBLIC OF

Power of Attorney: The patent practitioners associated with Customer Number 89980

Domestic Priority data as claimed by applicant

This application is a CON of 14/921,269 10/23/2015 PAT 10733773

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
REPUBLIC OF KOREA 10-2015-0059086 04/27/2015 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 07/21/2020
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/925,878**
Projected Publication Date: 10/29/2020
Non-Publication Request: No
Early Publication Request: No
Title

METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

Preliminary Class

345

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/925,878

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	17 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 07/28/2020

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
07/28/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.nsip@gmail.com
pto@nsiplaw.com

Office Action Summary	Application No. 16/925,878	Applicant(s) Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 10 July 2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-17 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-17 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 10 July 2020 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 103

2. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

3. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 2, and 9-11 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.**

5. Regarding claim 1, Gardner discloses a method of creating digital clothing (Paragraph [0113]: *method of capturing the 3D representation of the garment is to provide a digital representation of the 2D pattern pieces, sized to fit The Model, and then to create a virtual r presentation of the garment in 3D by meands of a program such as Stitch from Size8 Software of Jacksonville, Fla. The advantage of the virtual representation is that the rlationship betewen the 2D pattern pieces and the 3D representation is known with precision, which in creases the accuracy of the later unwrapping stage, and there is no missing data, which inevitably occurs*

with a 3D scan), wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing (Paragraph [0029]: *the present invention provides a method of processing information relating to a garment, the method comprising: providing or obtaining information defining the 3D shape of a garment designed to fit and as worn by a first body of a person of a first size and shape; providing or obtaining data defining the first body's size and shape in 3D without the garment in question; identifying defined body regions on the first body; identifying one or more design points on the garment, each design point being related in 3D to one or more of the defined body regions of the first body; providing relationship rules that define the said 3D relationships between said design points and said body regions; storing data defining the garment , the design points, the body regions, and the relationship rules*), the method comprising: setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern (Paragraph [0022]: *pattern pieces of the base garment are deformed to collide with a 3D human model and with each other, and are then virtually sewn together. This provides a 3D representation of the base garment fitted to a first human model. The first human model is deformed to match the shape/size of a consumer, and the base garment is modified simply by deforming the 3D representation of the base garment in a similar manner to the first human model. The 3D representation of the modified garment can be used for visualisation ("virtual try-on"), and/or as the basis for generating 2D pattern pieces for production of the modified garment. The document describes the 2D pattern pieces being generated by developing the corresponding 3D parts of the 3D representation into 2D shapes. This system relies on colliding base garment pattern pieces with the standard body shape and modifying the resultant 3D representation of the base garment on the basis of a geometrical deformation of the standard body shape to match a consumer body shape. This relatively simple approach provides no guarantee that the modified garment will preserve the design or style of the base garment, or*

that pattern pieces developed from the modified 3D representation of the garment will be capable of being assembled to produce an acceptable garment).

Gardner does not explicitly disclose setting a second selected segment, which comprises: inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point; and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

However, Sareen teaches virtual garment creating and storage based on the received garment specifications and fabric constants (Paragraph [0003]), further comprising setting a second selected segment, which comprises: inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment (Fig. 8; Paragraph [0040]: *from the digital pattern 57, production sample garment 59, technical pack 54, grading rules 53, fit model scan data or body measurements 58, and/or paper pattern 51 received from the retailer 50, digital pattern pieces are created, or converted from digital pattern 57, using the apparel product development software 114. Generally, a pattern refers to the collection of the individual pieces of the garment 59. In standard practice, the pattern pieces are drafted first, then laid over fabric, which is then cut around the perimeter of each piece. The resulting pieces of fabric are then sewn together to form the finished garment*); inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point (Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*); and setting, as the second selected segment, a section of

the second segment between the input starting point and the input ending point (Paragraph [0079]: *step 362, E-FIT assigns sewing instructions. In this step, E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0082]: *Sewing and draping may be completed using functions provided by CLOTHFX and native E-FIT according to the sewing instructions assigned above. Often, garments have lining and/or layers of material. In such cases, layers may be placed, stitched, and draped in a specific order*). Sareen teaches that this will allow for user to make custom patterns and therefore custom garments for the consumer (Paragraph [0209]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner with the features of setting a second selected segment, which comprises: inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point; and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point as taught by Sareen.

6. Regarding claim 2, Gardner, in view of Sareen teaches the method of claim 1, Gardner discloses wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles (Fig. 1; Fig. 11; Paragraph [0461]: *the Pattern Maker working in 3D would be provided with the upper arm measurement and the total size round its perimeter of the armhole*; Paragraph [0477]: *bottom of the yoke can be straight, square, curved or almost any shape imaginable. This profusion of designs makes it inappropriate to attempt to provide any standard set of design points. The design points set out below are therefore used only to indicate the principles of 3D Tailoring of Yokes*).

7. Regarding claim 9, Gardner, in view of Sareen teaches the method of claim 1, Gardner discloses wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied (Paragraph [1114]: *Such data could be downloaded to the central database 50. However, for reasons of customer privacy and confidentiality, it is preferred that this data is uniquely stored on a data carrier 58 which remains within the custody and control of the customer, with the only data passing to the central database 50 being an identification code identifying that customer. The data carrier 58 may be any convenient storage means such as a floppy disc, CD-ROM or smart card*).

8. Regarding claim 10, the limitations of this claim substantially correspond to the limitations of claim 1; thus they are rejected on similar grounds.

9. Regarding claim 11, the limitations of this claim substantially correspond to the limitations of claim 2; thus they are rejected on similar grounds.

10. **Claims 3-8 and 12-17 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner, in view of Sareen, and further in view of Park (US Pub. 2014/0135971).**

11. Regarding claim 3, Gardner, in view of Sareen teaches the method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point: displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment (Gardner: Paragraph [0120]: *construction lines (where present), the matching of the Design Points on different pattern pieces and the knowledge base of completed garments makes it possibl for an initial rough juxtapositioning of the pattern pieces to be carried out automatically, although the capability to carry out a manual juxtapositioning would be present as a fall-back*), a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by

connecting the input starting point to such a point (Sareen: Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*; Paragraph [0079]: *E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*).

Gardner, in view of Sareen does not explicitly disclose wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point: detecting a current cursor position.

However, Park teaches sewing of digital clothing (Paragraph [0004]), further comprising wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point: detecting a current cursor position (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view*). Park teaches that this enables a user to set start and end positions in each process section (Paragraph [0052]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner, in view of Sareen with the features wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point: detecting a current cursor position as taught by Park.

12. Regarding claim 4, Gardner, in view of Sareen, and further in view of Park teaches the method of claim 3, Park discloses wherein the setting of the second selected segment further comprises: in response to a difference between the current cursor position and the determined

candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view*; Paragraph [0054]: *process list 1150 of FIG. 11 may predict process time on the basis of a stitch length, a number of stitches, start and end positions of each process section, a number of yarn cuttings, a number of yarn cuttings set in a sewing manufacturing device, and a number of sewing manufacturing devices involved in each corresponding process; predict process cost on the basis of daily working conditions and the number of workers; and display the predicted process time and the predicted process cost*).

13. Regarding claim 5, Gardner, in view of Sareen, and further in view of Park teaches the method of claim 3, Gardner discloses wherein the setting of the second selected segment further comprises: calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position (Figs. 3-16; Paragraph [1101]: *Constraints between and within pattern pieces In order f r a garment to be constructible it is necessary to impose constraints between pattern pieces. In the case of the pattern piec f FIG. 32 there is a piece to the left, mirroring the one we see and the distance FG is constrained to be equal to the same length on the other piece. Similarly AB and BC are constrained to have lengths matching their companion seams*).

14. Regarding claim 6, Gardner, in view of Sareen, and further in view of Park teaches the method of claim 3, Sareen discloses wherein the setting of the second selected segment further comprises: displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position (Paragraphs [0188]-[0189]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value. In another embodiment, the stretch value may be calculated for many garment measurements… data may also include calculating the change in stretch in a similar fashion as described above, but with initial value set to the stretch value of the base size, and the final value being the stretch value of the selected size (if other than the base size). Furthermore, quantitative data may also include calculating the stretch value for specific points of measure, rather than for the entire garment, and then comparing them with the initial 3D virtual garment measurements from fit model drape*).

15. Regarding claim 7, Gardner, in view of Sareen, and further in view of Park teaches the method of claim 6, Park discloses wherein the setting of the second selected segment further comprises: in response to the difference value being greater than a reference value, displaying a warning sign (Paragraph [0015]: *manufacturing management method which includes receiving design information on an end product to be manufactured by sewing; configuring at least one component shape of the end product based on the design information; identifying one or more processes necessary for manufacturing the end product based on analysis of the one or more component shapes; enabling a user to select one process from the one or more processes; enabling a user to select one process from the processes; providing one or more process task*

charts related to the one or more processes; predicting at least one of process time and process cost for the selected process, on the basis of the sewing information and the sewing data; transmitting at least one of the sewing information and the sewing data to at least one sewing manufacturing device through a network; receiving a device status message from the at least one sewing manufacturing device, the device status message including an abnormal status message indicating that a status of the at least one sewing manufacturing device is abnormal; providing at least one of text data and multi-media data to address the abnormal status based on the abnormal status message; and transmitting an A/S request message to a sewing manufacturing device provider based on the abnormal status message; Paragraphs [0022]-[0026]: *the sewing information process module 126 enables the user to easily input sewing information on each process. Sewing information received at the sewing information process module 126 may include a stitch shape, a member to be used in each sewing processing section, a type and color of yarn, a needle, a stitch length, a total number of stitches, a start and end position of each section, an accessory attachment type, and other guidelines/cautions of sewing, but the present embodiment is not limited thereto. The sewing information process module 126 may separately store sewing information, which is received from a user, for each section in each process… sewing data process module 128 enables a user to provide sewing data, which is required for performing a corresponding sewing process, based on the sewing information stored in the sewing information process module 126. The sewing data may include a plurality of parameters for executing a component stitch pattern for each sewing process, and specifically include a stitch width, a number of stitches, an upper yarn tension, a sewing speed, a sewing machine foot pressure, etc., but the sewing data is not limited thereto. The sewing parameters may need to be adjusted according to the sewing manufacturing device that is used in a corresponding sewing process, and thus, the sewing data process module 128 may allow a user to select a sewing manufacturing device to be used. When a sewing manufacturing device that a user desires to use is not available, the sewing data process module 128 may transmit an*

inquiry or a request for a corresponding sewing manufacturing device to a provider…A/S module 138 may receive a device status message from the sewing manufacturing devices 190-1 to 190-n over the second network 152. The device status message may include an abnormal status message indicating that the status of the sewing manufacturing devices 190-1 to 190-n is abnormal, and the abnormal status message may include information to recognize each of the sewing manufacturing devices 190-1 to 190-n and provide details about the abnormal status. The A/S module 138 may provide the sewing manufacturing devices 190-1 to 190-n over the second network 152 with information necessary to address the abnormal status based on the details, for example, in the form of text data or multimedia data. In accordance with the information included in the text data or the multimedia data, the sewing manufacturing devices 190-1 to 190-n may be adjusted or configured by taking appropriate measures).

16. Regarding claim 8, Gardner, in view of Sareen, and further in view of Park teaches the method of claim 7, Sareen discloses wherein the displaying of the warning sign comprises: in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value (Paragraphs [0188]-[0190]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value…an example web page produced by the system illustrates how stretch values may be visually displayed using a color tension map. These color tension maps can be viewed in any image format, on the web, or in any standard image viewing software. The color maps may also be viewable using 3D Viewer Application 82. The color tension map displays high stretch values in red, low stretch values in green, and negative stretch values in blue. data may include visual images of consumer drape 1102. Qualitative data may include a visual representation or image*

of the consumer drape using a color tension map to show the parts of the garment that are fitting tight, loose, or well. The color tension maps may be configured to show stretch values in certain directions with respect to the grain line of the fabric. For instance, a color tension map which display stretch values along the warp direction may be very different than a color tension map which displays stretch values along the weft or bias directions).

17. Regarding claim 12, the limitations of this claim substantially correspond to the limitations of claim 3; thus they are rejected on similar grounds.

18. Regarding claim 13, the limitations of this claim substantially correspond to the limitations of claim 4; thus they are rejected on similar grounds.

19. Regarding claim 14, the limitations of this claim substantially correspond to the limitations of claim 5; thus they are rejected on similar grounds.

20. Regarding claim 15, the limitations of this claim substantially correspond to the limitations of claim 6; thus they are rejected on similar grounds.

21. Regarding claim 16, the limitations of this claim substantially correspond to the limitations of claim 7; thus they are rejected on similar grounds.

22. Regarding claim 17, the limitations of this claim substantially correspond to the limitations of claim 8; thus they are rejected on similar grounds.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D SALVUCCI whose telephone number is (571)270-5748. The examiner can normally be reached on M-F: 7:30-4:00PT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, XIAO WU can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47
CLAIM		DATE								
Final	Original	07/22/2020								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

CPC - Searched*		
Symbol	**Date**	**Examiner**
G05B2219/2626 + text	07/22/2020	MDS
G05B2219/45195 + text	07/22/2020	MDS

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST search file attached	07/22/2020	MDS
Google scholar search conducted	07/22/2020	MDS
Inventor search	07/22/2020	MDS
Interference search	07/22/2020	MDS

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
G05B	2219/2626 + text	07/22/2020	MDS
G05B	2219/45195 + text	07/22/2020	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Substitute for PTO/SB/08a/b

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	New Application
				Filing Date	Concurrently Herewith
				First Named Inventor	Seung Woo OH
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	2	Attorney Docket Number	304052.0001C1

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number - Kind Code[2] (if known)	Patent or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/M.S./	A	US 2004/0049309 A1	03-11-2004	Gardner et al.	
/M.S./	B	US 2011/0298897 A1	12-08-2011	Sareen et al.	
/M.S./	C	US 2013/0057544 A1	03-07-2013	Oh	Counterpart of KR 10-2011-0119260 A
/M.S./	D	US 2014/0135971 A	05-15-2014	Park	
/M.S./	E	US 2016/0078650 A1	03-17-2016	Kishikawa et al.	Counterpart of JP 2014-182670 A

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] - Number[4] - Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
/M.S./	a	JP 6-301763 A	10-28-1994	Nippon Steel Corp.		✓
/M.S./	b	JP 2014-182670 A	09-29-2014	GEO Technical Laboratory Co., Ltd.	Counterpart of US 2016/0078650 A1	X
/M.S./	c	KR 10-2011-0119260 A	11-02-2011	CLO Virtual Fashion	Counterpart of US 2013/0057544 A1	X

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
/M.S./	1	Volino, Pascal et al., "Resolving surface collisions through intersection contour minimization." Vol. 25., No. 3., ACM, 2006. (6 pages)	
/M.S./	2	CLO 3D 2011 Marvelous Designer Manual (2014).	✓
/M.S./	3	Korean Office Action issued March 28, 2016 in counterpart Korean Application No. 10-2015-0059086 (5 pages in Korean).	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04(a). [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached (X indicates Abstract only provided).

Substitute for PTO/SB/08a/b

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	New Application
				Filing Date	Concurrently Herewith
				First Named Inventor	Seung Woo OH
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number	304052.0001C1

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
/M.S./	4	Korean Notice of Allowance issued September 24, 2016, in counterpart Korean Application No. 10-2015-0059086 (2 pages in Korean).	

Examiner Signature	/MATTHEW SALVUCCI/	Date Considered	07/22/2020

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04(a). [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached (X indicates Abstract only provided).

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	35	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L2	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L3	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L4	1	("20160314604").PN.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L5	520	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L6	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L7	30	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR	US-PGPUB; USPAT; USOCR;	OR	OFF	2020/07/22 15:23

		textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L8	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L9	2	(("20130057544") or ("20160078650")).PN.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L10	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L11	106	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L12	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L13	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L14	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/07/22 15:23

		begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	DERWENT; IBM_TDB			
L15	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L16	68	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L17	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L18	233	(stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L19	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L20	45	L19 NOT L17	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L21	254	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes	US-PGPUB; USPAT;	OR	OFF	2020/07/22 15:23

		OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L22	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L23	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L24	199	L21 NOT (L23 L22)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L25	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L26	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L27	122	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/07/22 15:23

		CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	DERWENT; IBM_TDB			
L28	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L29	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L30	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L31	8	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L32	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L33	59	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/07/22 15:23

			DERWENT; IBM_TDB			
L34	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L35	138	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L36	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L37	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L38	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L39	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L40	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L41	7,800	(Seung Woo).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2020/07/22 15:23

L42	31	(Seung Woo NEAR3 OH).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2020/07/22 15:23
L43	3	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L44	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L45	179	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L46	145	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L47	77	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L48	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2020/07/22 15:23

		(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	JPO; DERWENT; IBM_TDB			
L49	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L50	15	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L51	37	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L52	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L53	59	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23
L54	31	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/07/22 15:23

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L55	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L56	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L57	1	(G05B2219/2626 G05B2219/45195).CPC. AND ((stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L58	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23
L59	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/07/22 15:23

7/22/2020 3:31:35 PM
C:\Users\msalvucci\Documents\EAST\Workspaces\14921269_DigitalFabricSewing.wsp

Bibliographic Data

Application No: 16/925,878

Foreign Priority claimed: ◉ Yes ○ No

35 USC 119 (a-d) conditions met: ☑ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /MATTHEW SALVUCCI/ Examiner's Signature | Initials

Title: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/10/2020	345	2613	304052.0001C1
RULE			

APPLICANTS

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Kyoung Ae Bang, Seoul, KOREA, REPUBLIC OF

CONTINUING DATA

This application is a CON of 14921269 10/23/2015 PAT 10733773

FOREIGN APPLICATIONS

KOREA, REPUBLIC OF 10-2015-0059086 04/27/2015

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/21/2020

STATE OR COUNTRY

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UNITED STATES

FILING FEE RECEIVED

$1,720

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Seung Woo Oh		
Serial No.:	16/925,878	Conf. No.:	1069
Filed:	7/10/2020	Examiner:	Salvucci, Mathew D.
Docket No.:	304052.0001C1	Art Unit:	2613
For:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING		

AMENDMENT UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Office Action mailed July 28, 2020. Reconsideration and allowance of the claims is respectfully requested in view of the amendments and the remarks.

Amendments to the Claims are reflected in the listing of the claims that begins on page **2** of this Paper.

Remarks begin on page **7** of this Paper.

Electronic Acknowledgement Receipt	
EFS ID:	40966328
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	28-OCT-2020
Filing Date:	10-JUL-2020
Time Stamp:	09:31:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		OA20200728_3040520001C1_AmendasFiled.pdf	98264 70ee502080bc01369a378919b00609716616e472	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	7	12
	Claims	2	6
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	98264	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

At the outset, the Office is thanked for the review and consideration of the pending application. The Office Action mailed July 28, 2020has been received and its contents reviewed. Reconsideration of the pending application is respectfully requested in view of the amendments and the following remarks.

Claims 1-17 are currently under examination, of which claims 1 and 10 are independent claims.

In accordance with the foregoing, claims 1, 3, 10 and 12 have been amended. Support for the amended claims can be found, for example, on page 25 lines 3-5 of the Specification. Applicants have amended the claims solely to further prosecution of the disclosed embodiments, and not in response to the merits of the outstanding rejections. Applicants reserve the right to prosecute broader claims or embodiments, including the original claims, in this application or a continuing application derived therefrom.

Claim Rejections Under 35 USC §103

Claims 1, 2, and 9-11 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.

Claims 3-8 and 12-17 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner, in view of Sareen, and further in view of Park (US Pub. 2014/0135971).

These rejections are respectfully traversed.

Independent Claims 1 and 10

Claim 1 recites, inter alia, setting a second selected segment, which comprises: inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; detecting a current cursor position; inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the

input starting point; and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

It is respectfully submitted that full combinations of features in independent claim 1 are nowhere disclosed or suggested by the cited references. In setting forth the rejection, the Office readily acknowledged that Gardner does not explicitly disclose inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment; however, Sareen was cited as disclosing such feature.

The Office stated that

> Sareen teaches virtual garment creating and storage based on the received garment specifications and fabric constants (Paragraph [0003]), further comprising… inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point (Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*);

See Office Action at page 4. Applicants respectfully disagree that Sareen discloses the claimed inputting to an ending point.

Sareen discloses "an apparatus . . . for 3D virtual try-on of apparel on an avatar." See Sareen at ¶ 0003. Paragraph 0069 of Sareen discloses "stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn." *See* Sareen at ¶ 0069. Paragraph 0079 of Sareen discloses that "E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together." *See* Sareen at ¶ 0079. Paragraph 0082 of Sareen discloses that "layers may be placed, stitched, and draped in a specific order. The culmination of the simulation results in a drape on fit model avatar 173 that may be identical to the drape of a real garment on a real fit model." *See* Sareen at ¶ 0082. Thus, at best, Sareen disclose starting and ending point of the segments, but absolutely fails to disclose when not to input the ending point and the condition necessary for not inputting the ending point, as now recited in claim 1.

The Office readily acknowledged that Gardner in view of Sareen does not explicitly disclose wherein the setting of the second selected segment further comprises, the inputting of the starting point and the inputting of the ending point, and detecting a current cursor position; however, Park was cited as disclosing such feature. See Office Action at page 7.

The portions of Park cited by the Office fails to cure the deficiencies of Gardner and Sareen. Instead, "FIG. 9 of Park is a diagram illustrating an example of a process information input interface 900." *See* Park at ¶ 0052[1]. Park discloses that the "process information input interface 900 may include a full view 902 displaying at least one component in its entirety in association with a corresponding process, and a zoom view 904 enlarging and displaying the full view 902." *Id.* Park discloses that the "process information input window 912 may receive a product name, a product code, a process number, a process name, a BOM code, a type of a sewing manufacturing device, a stitch shape and materials to be used in each section, a type and color of yarn, a type of a needle, a stitch length, a total number of stitches, an accessory attachment type, and other work guidelines." *Id.* Further, Park discloses that "the process information input interface 900 enables a user to set start and end positions in each process

[1] Specifically, paragraph 0052 of Park discloses that:

> FIG. 9 is a diagram illustrating another example of a process information input interface 900, according to at least one embodiment of the present disclosure. According to an embodiment, the process information input interface 900 may include a full view 902 displaying at least one component in its entirety in association with a corresponding process, and a zoom view 904 enlarging and displaying the full view 902, but the present embodiment is not limited thereto. Some portions of the full view 902 necessary for certain sewing work in a corresponding process may be emphasized and enlarged, and the enlarged portions may be displayed on the zoom view 904, but the present embodiment is not limited thereto. The process information input interface 900 may further include a process information input window 912 that enables the input of information on a corresponding process. The process information input window 912 may receive a product name, a product code, a process number, a process name, a BOM code, a type of a sewing manufacturing device, a stitch shape and materials to be used in each section, a type and color of yarn, a type of a needle, a stitch length, a total number of stitches, an accessory attachment type, and other work guidelines, but the present embodiment is not limited thereto. Also, **the process information input interface 900 enables a user to set start and end positions in each process section. For example, a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900**, but the present embodiment is not limited thereto. In an embodiment, **a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position**. As an example, the set start position and end position are displayed on the zoom view of FIG. 9.

See Park at ¶ 0052 (emphasis added).

section." Id.

In contrast to the ending point and starting point for the second selected segment recited in claim 1, Park discloses that "a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900." *Id.* Park discloses that for **setting a start position**:

> a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section.

Id. Similarly, Park discloses that for **setting an end position**:

> the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position.

Id. Thus, at best, Park disclose setting a start position and setting an end position, but absolutely fails to disclose when not to input the ending point and the condition necessary for not inputting the ending point, as now recited in claim 1. For example, Park fails to disclose

> wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point

as recited in claim 1.

The remaining portions of Park fail to cure the above identified deficiencies. For example, FIG. 11 of Park discloses "a sewing process time and cost prediction interface 1100." *See* Park at ¶ 0054. Park discloses that "the sewing process time and cost prediction interface 1100 may further include a process list button 1108 and a daily required manufacturing amount button 1110. When a user selects the process list button 1108 . . . a process list 1150 for manufacturing the corresponding end product may be displayed." *Id.* Park discloses that "[w]hen When the daily required manufacturing amount button 1110 is selected, the sewing process time and cost prediction interface 1100 enables a user to input a daily required manufacturing amount for the corresponding end product." *Id.* Park discloses that the process time may be predicted based on a list of factors, such as, "a stitch length, a number of stitches, start and end positions of each process section, a number of yarn cuttings, a number of yarn cuttings set in a sewing manufacturing device, and a number of sewing manufacturing devices involved in each corresponding process; predict process cost on the basis of daily working conditions and the number of workers." Finally, Park discloses displaying of the "predicted process time and the predicted process cost."

Thus, the cited references completely fail to disclose the ending point not being input

when the current cursor is closer to another second segment than the second segment that includes the input starting point. Because the cited references, individually or combined, do not disclose, at least, the fore-mentioned elements of claim 1, a *prima facie* rejection for obviousness has not been established with respect to independent claim 1. Accordingly, for at least this reason, the rejection of claim 1 over the Gardner, Sareen, and Park under 35 U.S.C. § 103 should be withdrawn.

In view of the above discussions regarding the actual disclosures of Gardner, Sareen, and Park, it is respectfully submitted that neither Gardner, Sareen, nor Park, nor any combination of the same, would disclose or suggest all the features of claim 10.

Dependent Claims 2-9 and 11-27

Dependent claims 2-9 and 11-17 are in allowable condition, at least, based on their dependencies from allowable independent claims 1 and 10, respectively, and for the additional features they recite.

Applicants therefore respectfully request withdrawal of the 35 USC 103 rejections.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Office is requested to telephone the undersigned to attend to these matters.

In the event this paper is not being timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees only associated with the processing of this Amendment and any other documents filed concurrently with this Amendment may be charged to Counsel's Deposit Account 50-5113.

Respectfully submitted,

Date: October 28, 2020

/Wale T. Godo/
Wale T. Godo
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NSIP Law

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Telephone (202) 429-0020 x124
Facsimile (202) 315-3758

IN THE CLAIMS:

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is listed with one of (Original), (Currently Amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please **AMEND** claims 1, 3, 10 and 12, as follows:

1. (Currently Amended) A method of creating digital clothing, wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing, the method comprising:

setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment, which comprises:

inputting a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment;

detecting a current cursor position;

inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point; and

setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

2. (Original) The method of claim 1, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. (Currently Amended) The method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point:

~~detecting a current cursor position; and~~

displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

4. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position.

5. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

6. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

7. (Original) The method of claim 6, wherein the setting of the second selected segment further comprises:

in response to the difference value being greater than a reference value, displaying a warning sign.

8. (Original) The method of claim 7, wherein the displaying of the warning sign comprises:

in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value.

9. (Original) The method of claim 1, wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied.

10. (Currently Amended) An apparatus for creating digital clothing, wherein the apparatus comprises a computing element and a storage element storing patterns and draped digital clothing, the apparatus comprising:

a user interface, which comprises:

a first selected segment setter configured to set a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

a second selected segment setter, which comprises:

a cursor position detector configured to detect a current cursor position;

a starting point input configured to input a starting point of a second selected segment onto at least one second segment, which is to be sewn to the first selected segment; and

an ending point input configured to input an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point.

11. (Original) The apparatus of claim 10, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

12. (Currently Amended) The apparatus of claim 10, further comprising:

~~a cursor position detector configured to detect a current cursor position; and~~

an ending point candidate display configured to display a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

13. (Original) The apparatus of claim 12, further comprising:

a cursor position mover configured to, in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, move the cursor position to a position of the determined candidate for the ending point and display the cursor position.

14. (Original) The apparatus of claim 13, further comprising:

a length display configured to calculate and display at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

15. (Original) The apparatus of claim 13, further comprising:

a difference value display configured to display a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

16. (Original) The apparatus of claim 15, further comprising:

a warning sign display configured to, in response to the difference value being greater than a reference value, display a warning sign.

17. (Original) The apparatus of claim 16, wherein the warning sign display is configured to, in response to the difference value being greater than the reference value, display the warning sign by changing colors of the calculated length and the difference value.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/925,878	Filing Date 07/10/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	10/28/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/SHARON D HARRIS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1

CONFIRMATION NO. 1069

89980
NSIP LAW
P.O. Box 65745
Washington, DC 20035

PUBLICATION NOTICE

OC000000121002038

Title:METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

Publication No.US-2020-0342641-A1
Publication Date:10/29/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 12/09/2020

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
12/09/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.nsip@gmail.com
pto@nsiplaw.com

Office Action Summary	Application No. 16/925,878	Applicant(s) Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 28 October 2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-17 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-17 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Status of Claims

2. Applicant's amendments filed on 28 October 2020 have been entered. Claims 1, 3, 10, and 12 have been amended. No claims have been canceled. No claims have been added. Claims 1-17 are still pending in this application, with claims 1 and 10 being independent.

Response to Arguments

3. Applicant's arguments with respect to claims 1-17 have been considered but are moot because the new ground of rejection does not rely on any reference applied in the prior rejection of record for any teaching or matter specifically challenged in the argument.

Claim Rejections - 35 USC § 112

4. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-17 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

6. Claim 1 recites the limitation "inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point" in the penultimate clause. There is insufficient antecedent basis for this limitation in the claim as it is unclear how an ending point is both inputted and also not inputted and it is unclear how a second segment can both include an input starting point and not include the second segment. Namely, this clause presents multiple issues that require addressing.

7. Claim 10 contains substantially similar limitations and is rejected accordingly.

8. Claim 1 further recites the limitation: "setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point" in the penultimate clause. There is insufficient antecedent basis for this limitation in the claim as it is unclear which instance of the second segment corresponds to the second selected segment in this limitation; further, it is unclear how such a setting will occur if there is no input ending point. Appropriate correction is required.

9. The remaining claims depend from one of the above independent claims and are likewise rejected.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D SALVUCCI whose telephone number is (571)270-5748. The examiner can normally be reached on M-F: 7:30-4:00PT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, XIAO WU can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	07/22/2020	12/04/2020							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

CPC - Searched*		
Symbol	**Date**	**Examiner**
G05B2219/2626 + text	07/22/2020	MDS
G05B2219/45195 + text	07/22/2020	MDS

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST search file attached	07/22/2020	MDS
Google scholar search conducted	07/22/2020	MDS
Inventor search	07/22/2020	MDS
Interference search	07/22/2020	MDS
Updated search results in EAST	12/04/2020	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G05B	2219/2626 + text	07/22/2020	MDS
G05B	2219/45195 + text	07/22/2020	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L5	36	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L6	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L7	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L8	1	("20160314604").PN.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:25
L9	520	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L10	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L11	30	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR	US-PGPUB; USPAT; USOCR;	OR	OFF	2020/12/04 16:25

		textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L12	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L13	2	(("20130057544") or ("20160078650")).PN.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:25
L14	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L15	106	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L16	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L17	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L18	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/12/04 16:25

		begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	DERWENT; IBM_TDB			
L19	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L20	68	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L21	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L22	233	(stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L23	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L24	45	L23 NOT L21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L25	254	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes	US-PGPUB; USPAT;	OR	OFF	2020/12/04 16:25

		OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L26	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L27	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L28	199	L25 NOT (L27 L26)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L29	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L30	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L31	122	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/12/04 16:25

		CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	DERWENT; IBM_TDB			
L32	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L33	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L34	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L35	8	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L36	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L37	59	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/12/04 16:25

			DERWENT; IBM_TDB			
L38	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:25
L39	138	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L40	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L41	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L42	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L43	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L44	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:25
L45	7,924	(Seung Woo).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2020/12/04 16:25

L46	35	(Seung Woo NEAR3 OH).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2020/12/04 16:25
L47	4	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L48	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L49	181	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L50	145	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L51	78	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:25
L52	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2020/12/04 16:26

		(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	JPO; DERWENT; IBM_TDB			
L53	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26
L54	16	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26
L55	39	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26
L56	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26
L57	59	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26
L58	31	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/12/04 16:26

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L59	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:26
L60	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:26
L61	3	(G05B2219/2626 G05B2219/45195).CPC. AND ((stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:26
L62	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:26
L63	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2020/12/04 16:26

12/4/2020 4:35:48 PM
C:\Users\msalvucci\Documents\EAST\Workspaces\16925878_DigitalFabricSewing.wsp

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT AFTER FINAL REJECTION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Final Office Action mailed 12/09/2020. Reconsideration of the claims is respectfully requested.

Amendments to the claims begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

Copied from 16925878 on 03/12/2021

IN THE CLAIMS

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is listed with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please add claims 18-20, and amend claims 1 and 10, without prejudice or disclaimer, in accordance with the following:

1. (Currently amended) A method of creating digital clothing, wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing, the method comprising:

setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment, which comprises:

inputting a starting point of ~~a~~ the second selected segment onto at least one second segment, which is to be sewn to the first selected segment;

detecting a current cursor position;

~~inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point; and~~

inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments; and

setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

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2. (Original) The method of claim 1, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. (Previously presented) The method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point:

displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

4. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position.

5. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

6. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

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7. (Original) The method of claim 6, wherein the setting of the second selected segment further comprises:

in response to the difference value being greater than a reference value, displaying a warning sign.

8. (Original) The method of claim 7, wherein the displaying of the warning sign comprises:

in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value.

9. (Original) The method of claim 1, wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied.

10. (Currently amended) An apparatus for creating digital clothing, wherein the apparatus comprises a computing element and a storage element storing patterns and draped digital clothing, the apparatus comprising:

a user interface, which comprises:

a first selected segment setter configured to set a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

a second selected segment setter, which comprises:

a cursor position detector configured to detect a current cursor position;

a starting point input configured to input a starting point of ~~a~~ the second selected segment onto at least one second segment, which is to be sewn to the first selected segment; and

an ending point input configured to ~~input an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point~~input, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments.

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11. (Original) The apparatus of claim 10, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

12. (Previously presented) The apparatus of claim 10, further comprising:

an ending point candidate display configured to display a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

13. (Original) The apparatus of claim 12, further comprising:

a cursor position mover configured to, in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, move the cursor position to a position of the determined candidate for the ending point and display the cursor position.

14. (Original) The apparatus of claim 13, further comprising:

a length display configured to calculate and display at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

15. (Original) The apparatus of claim 13, further comprising:

a difference value display configured to display a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

16. (Original) The apparatus of claim 15, further comprising:

a warning sign display configured to, in response to the difference value being greater than a reference value, display a warning sign.

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17. (Original) The apparatus of claim 16, wherein the warning sign display is configured to, in response to the difference value being greater than the reference value, display the warning sign by changing colors of the calculated length and the difference value.

18. (New) The method of claim 1, wherein the ending point is input upon starting a point-clicking process at the starting point.

19. (New) The method of claim 18, wherein the point is located where the point-clicking processes occurs.

20. (New) The method of claim 19, wherein when the point-clicking process occurs, the current cursor position is closer to the second segment that includes the input starting point than to any other second segment among the plurality of second segments.

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REMARKS

Upon entry of this amendment, claims 1-20 are pending in the application, of which claims 1 and 10 are independent claims.

Claims 1 and 10 have been amended, to more positively and precisely recite the claim features. Claims 18-20 have been added. No new matter has been entered, and support for the amendments of the claims can be found in the original specification, for example, on page 11 lines 4-12.

Although the Applicant disagrees with the examiner rejection or one or more aspects of the examiner positions, claim amendments are made nevertheless to expedite the allowance of allowable embodiment(s) amongst other and/or broader embodiments disclosed by the application. Applicant reserves its right to pursue a broader or different embodiment(s) in the continuation application(s) or other application(s).

Reconsideration and allowance of the pending claims is respectfully requested in view of the amendments and the following remarks.

I. Claim Rejections under 35 U.S.C. § 112(b)

Claims 1-17 were rejected under 35 U.S.C. § 112(b) as being indefinite. These rejections are respectfully traversed, but are moot in light of the claim amendments. Accordingly, withdrawal of the rejections of claims 1-17 under 35 U.S.C. § 112(b) is respectfully requested.

II. Claim Amendments

Applicant acknowledges that the rejections under 35 U.S.C. § 103 in the Non-Final Office Action mailed 07/28/2020 have been withdrawn. As shown below, the cited references do not teach or suggest all of the features of the claims as amended.

Claim 1 recites, *inter alia*, "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments." Applicant notes that in the Non-Final Office Action, the Office rejected the previously recited features of "inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point" based on paragraph 0069 of Sareen. However, as shown below, Sareen does not disclose

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the above-mentioned features of the amended independent claim 1 and similarly recited features of independent claim 10.

In paragraph 0069, Sareen discloses:

> …stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn.

Sareen discloses adding marks to define starting and ending points of the segments that will be sewn. However, Sareen does not disclose that the ending point is input as a point on a second segment that includes an input starting point, closest to a current cursor position. Sareen also does not disclose that the inputting occurs when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Although Sareen discloses using "E-FIT," Sareen does not disclose that E-FIT performs such a function. Instead, Sareen discloses that E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together. *See* Sareen at paragraph 0049. Therefore, Sareen does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

In the Non-Final Office Action, the Office cited paragraph 0022 of Gardner, which does not describe Gardner's invention, but instead describes the disclosure of Published European Patent Application EP-A-0,933,728. Accordingly, such a disclosure cannot be relied upon without a rationale about why it would have been obvious to combine such features with Gardner's actual invention, if other paragraphs of Garnder were relied upon.

Gardner fails to disclose the above-mentioned features. In paragraph 0022, Garder describes that EP-A-0,933,728 discloses 2D pattern pieces being generated by developing corresponding 3D parts of 3D representations into 2D shapes. However, Gardner does not disclose inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position. Garnder also does not disclose that the ending point is input when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Instead, Gardner merely discloses

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that this method provides no guarantee that the modified garment will preserve the design or style of the base garment, or that pattern pieces developed from the modified 3D representation of the garment will be capable of being assembled to produce an acceptable garment. Therefore, Gardner does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

Park fails to cure the deficiencies of Gardner and Sareen. Park discloses that a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. *See* Park at paragraph 0052. Park further discloses that the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. *Id.* However, Park does not disclose that the end position is a point, on a second segment that includes an input starting point, closest to a current cursor position. Park also does not disclose that the end position is input when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Instead, Park discloses that the set start position and end position are displayed on the zoom view. Therefore, Park does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

To support an obviousness rejection under 35 U.S.C. § 103, MPEP § 2143.03 requires "all words of a claim to be considered." Further, the Board of Patent Appeal and Interference has affirmed that a proper, post-KSR obviousness determination still requires that the Office make "a searching comparison of the claimed invention — including all its limitations — with the teaching of the prior art." *In re Wada and Murphy*, Appeal 2007-3733, page 7 (BPAI Jan. 14, 2008) (citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995)). To make a prima facie finding of "obviousness requires a suggestion of all limitations in a claim." *Id*. (citing *CFMT v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)).

Because the cited references do not teach or suggest all of the features of the claims, the claims are not obvious under 35 U.S.C. § 103.

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III. New Claims

New claims 18-20 have been added, which have support in the original specification at least on page 11 lines 4-12. The references cited by the Office do not teach or suggest the subject matter of claims 18-20.

In view of the foregoing remarks, the Applicant respectfully requests withdrawal of the rejections and allowance of all the claims.

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CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and timely allowance of all pending claims. Should the Office believe anything further is required to place the application in condition for allowance, the Examiner is requested to contact the Applicant's representative at the telephone number listed below.

In the event this paper is not being filed timely, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees that may be required for this paper, and any other documents filed concurrently with this paper, may be charged to North Star Intellectual Property Law, PC's Deposit Account No. 50-5113.

Respectfully submitted,

Date: February 11, 2021

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Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT AFTER FINAL REJECTION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Final Office Action mailed 12/09/2020. Reconsideration of the claims is respectfully requested.

Amendments to the claims begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

IN THE CLAIMS

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is listed with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please add claims 18-20, and amend claims 1 and 10, without prejudice or disclaimer, in accordance with the following:

1. (Currently amended) A method of creating digital clothing, wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing, the method comprising:

setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment, which comprises:

inputting a starting point of ~~a~~ the second selected segment onto at least one second segment, which is to be sewn to the first selected segment;

detecting a current cursor position;

~~inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point; and~~

inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments; and

setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

2. (Original) The method of claim 1, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. (Previously presented) The method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point:

displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

4. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position.

5. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

6. (Original) The method of claim 3, wherein the setting of the second selected segment further comprises:

displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

7. (Original) The method of claim 6, wherein the setting of the second selected segment further comprises:

in response to the difference value being greater than a reference value, displaying a warning sign.

8. (Original) The method of claim 7, wherein the displaying of the warning sign comprises:

in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value.

9. (Original) The method of claim 1, wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied.

10. (Currently amended) An apparatus for creating digital clothing, wherein the apparatus comprises a computing element and a storage element storing patterns and draped digital clothing, the apparatus comprising:

a user interface, which comprises:

a first selected segment setter configured to set a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern; and

a second selected segment setter, which comprises:

a cursor position detector configured to detect a current cursor position;

a starting point input configured to input a starting point of ~~a~~ the second selected segment onto at least one second segment, which is to be sewn to the first selected segment; and

an ending point input configured to ~~input an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point, wherein the ending point is not input when the current cursor is closer to another second segment than the second segment that includes the input starting point~~input, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments.

11. (Original) The apparatus of claim 10, wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

12. (Previously presented) The apparatus of claim 10, further comprising:

an ending point candidate display configured to display a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.

13. (Original) The apparatus of claim 12, further comprising:

a cursor position mover configured to, in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, move the cursor position to a position of the determined candidate for the ending point and display the cursor position.

14. (Original) The apparatus of claim 13, further comprising:

a length display configured to calculate and display at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position.

15. (Original) The apparatus of claim 13, further comprising:

a difference value display configured to display a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position.

16. (Original) The apparatus of claim 15, further comprising:

a warning sign display configured to, in response to the difference value being greater than a reference value, display a warning sign.

17. (Original) The apparatus of claim 16, wherein the warning sign display is configured to, in response to the difference value being greater than the reference value, display the warning sign by changing colors of the calculated length and the difference value.

18. (New) The method of claim 1, wherein the ending point is input upon starting a point-clicking process at the starting point.

19. (New) The method of claim 18, wherein the point is located where the point-clicking processes occurs.

20. (New) The method of claim 19, wherein when the point-clicking process occurs, the current cursor position is closer to the second segment that includes the input starting point than to any other second segment among the plurality of second segments.

REMARKS

Upon entry of this amendment, claims 1-20 are pending in the application, of which claims 1 and 10 are independent claims.

Claims 1 and 10 have been amended, to more positively and precisely recite the claim features. Claims 18-20 have been added. No new matter has been entered, and support for the amendments of the claims can be found in the original specification, for example, on page 11 lines 4-12.

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Reconsideration and allowance of the pending claims is respectfully requested in view of the amendments and the following remarks.

I. Claim Rejections under 35 U.S.C. § 112(b)

Claims 1-17 were rejected under 35 U.S.C. § 112(b) as being indefinite. These rejections are respectfully traversed, but are moot in light of the claim amendments. Accordingly, withdrawal of the rejections of claims 1-17 under 35 U.S.C. § 112(b) is respectfully requested.

II. Claim Amendments

Applicant acknowledges that the rejections under 35 U.S.C. § 103 in the Non-Final Office Action mailed 07/28/2020 have been withdrawn. As shown below, the cited references do not teach or suggest all of the features of the claims as amended.

Claim 1 recites, *inter alia*, "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments." Applicant notes that in the Non-Final Office Action, the Office rejected the previously recited features of "inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point" based on paragraph 0069 of Sareen. However, as shown below, Sareen does not disclose

the above-mentioned features of the amended independent claim 1 and similarly recited features of independent claim 10.

In paragraph 0069, Sareen discloses:

> …stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn.

Sareen discloses adding marks to define starting and ending points of the segments that will be sewn. However, Sareen does not disclose that the ending point is input as a point on a second segment that includes an input starting point, closest to a current cursor position. Sareen also does not disclose that the inputting occurs when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Although Sareen discloses using "E-FIT," Sareen does not disclose that E-FIT performs such a function. Instead, Sareen discloses that E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together. *See* Sareen at paragraph 0049. Therefore, Sareen does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

In the Non-Final Office Action, the Office cited paragraph 0022 of Gardner, which does not describe Gardner's invention, but instead describes the disclosure of Published European Patent Application EP-A-0,933,728. Accordingly, such a disclosure cannot be relied upon without a rationale about why it would have been obvious to combine such features with Gardner's actual invention, if other paragraphs of Garnder were relied upon.

Gardner fails to disclose the above-mentioned features. In paragraph 0022, Garder describes that EP-A-0,933,728 discloses 2D pattern pieces being generated by developing corresponding 3D parts of 3D representations into 2D shapes. However, Gardner does not disclose inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position. Garnder also does not disclose that the ending point is input when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Instead, Gardner merely discloses

that this method provides no guarantee that the modified garment will preserve the design or style of the base garment, or that pattern pieces developed from the modified 3D representation of the garment will be capable of being assembled to produce an acceptable garment. Therefore, Gardner does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

Park fails to cure the deficiencies of Gardner and Sareen. Park discloses that a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. *See* Park at paragraph 0052. Park further discloses that the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. *Id.* However, Park does not disclose that the end position is a point, on a second segment that includes an input starting point, closest to a current cursor position. Park also does not disclose that the end position is input when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Instead, Park discloses that the set start position and end position are displayed on the zoom view. Therefore, Park does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

To support an obviousness rejection under 35 U.S.C. § 103, MPEP § 2143.03 requires "all words of a claim to be considered." Further, the Board of Patent Appeal and Interference has affirmed that a proper, post-KSR obviousness determination still requires that the Office make "a searching comparison of the claimed invention — including all its limitations — with the teaching of the prior art." *In re Wada and Murphy*, Appeal 2007-3733, page 7 (BPAI Jan. 14, 2008) (citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995)). To make a prima facie finding of "obviousness requires a suggestion of all limitations in a claim." *Id*. (citing *CFMT v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)).

Because the cited references do not teach or suggest all of the features of the claims, the claims are not obvious under 35 U.S.C. § 103.

III. New Claims

New claims 18-20 have been added, which have support in the original specification at least on page 11 lines 4-12. The references cited by the Office do not teach or suggest the subject matter of claims 18-20.

In view of the foregoing remarks, the Applicant respectfully requests withdrawal of the rejections and allowance of all the claims.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and timely allowance of all pending claims. Should the Office believe anything further is required to place the application in condition for allowance, the Examiner is requested to contact the Applicant's representative at the telephone number listed below.

In the event this paper is not being filed timely, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees that may be required for this paper, and any other documents filed concurrently with this paper, may be charged to North Star Intellectual Property Law, PC's Deposit Account No. 50-5113.

Respectfully submitted,

Date: February 11, 2021

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Electronic Acknowledgement Receipt	
EFS ID:	41904525
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Joseph Richard Conte III
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	11-FEB-2021
Filing Date:	10-JUL-2020
Time Stamp:	16:29:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		FOA20201209_3040520001C1_RespAsFiled.pdf	67979 9ee38ae52c1cb3167c5d8c8de84d8f144d8ce4ae	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response After Final Action	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	11
Warnings:			
Information:			
	Total Files Size (in bytes):	67979	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 02/22/2021

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
02/22/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pto.nsip@gmail.com
pto@nsiplaw.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 16/925,878	**Applicant(s)** Oh et al.	
	Examiner MATTHEW D SALVUCCI	**Art Unit** 2613	**AIA (FITF) Status** Yes

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 11 February 2021 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: The claims have been amended in a way that requires further search and consideration (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: Applicant presents arguments regarding the claims which have been amended in a way that requires further search and consideration.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-17.
    Claim(s) withdrawn from consideration:_____.

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

DO NOT ENTER: /M.S./ 02/16/2021

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT AFTER FINAL REJECTION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Final Office Action mailed 12/09/2020. Reconsideration of the claims is respectfully requested.

Amendments to the claims begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/925,878	Filing Date 07/10/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	03/09/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/VINCENT S BUTLER/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/925,878	Filing Date	2020-07-10	Docket Number (if applicable)	304052.0001C1	Art Unit	2613
First Named Inventor	Seung Woo Oh			Examiner Name	Matthew D Salvucci		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505113

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Wale T. Godo/	Date (YYYY-MM-DD)	2021-03-09
Name	Wale T. Godo	Registration Number	75219

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal	
Application Number:	16925878
Filing Date:	10-Jul-2020
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Filer:	Wale T. Godo
Attorney Docket Number:	304052.0001C1
Filed as Large Entity	

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**1360**

Electronic Acknowledgement Receipt	
EFS ID:	42125913
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	09-MAR-2021
Filing Date:	10-JUL-2020
Time Stamp:	11:29:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1360
RAM confirmation Number	E202139B30424699
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	AA20210222_3040520001C1_RCETransmittal.pdf	697600 053c8cd459068152a7d26bee9c471ea44720cf33	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30353 6537f169f9bb949a00576b98d128a6218316d376	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	727953		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 05/14/2021

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
05/14/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pto.nsip@gmail.com
pto@nsiplaw.com

Office Action Summary	Application No. 16/925,878	Applicant(s) Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 09 March 2021.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9 March 2021 has been entered.

Status of Claims

3. Applicant's amendments filed on 11 February 2021 have been entered. Claims 1 and 10 have been amended. No claims have been canceled. Claims 18-20 have been added. Claims 1-20 are still pending in this application, with claims 1 and 10 being independent.

Response to Arguments

4. Applicant's arguments filed 11 February 2021 have been fully considered but they are not persuasive. With respect to the Park reference, which is currently cited as teaching the amended limitation in question from claim 1, Applicant argues "*Park discloses that a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. See Park at paragraph 0052. Park further discloses that the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end*

position. Id. However, Park does not disclose that the end position is a point, on a second segment that includes an input starting point, closest to a current cursor position. Park also does not disclose that the end position is input when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Instead, Park discloses that the set start position and end position are displayed on the zoom view. Therefore, Park does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."". Examiner points to Fig. 9 which is also cited and displays that Park clearly teaches the claimed limitations. In addition, Examiner notes that the clicking is done on the location where the cursor is located and that the location corresponds to that in the claimed limitaiton. Thus, Examiner maintains that the limitations of claim 1 and similar limitations in independent claim 10 are taught by the cited references as outlined below.

5. It follows that all depending claims are maintained for at least the above reasons and the rejections below.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 18-20 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for applications subject to pre-AIA 35 U.S.C. 112, the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. Claim 18 recites the limitation "wherein the ending point is input upon starting a point-clicking process at the starting point". Examiner notes that the discussion in the Specification recites: "inputting an ending point, **which**, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs" (**emphasis added**). Examiner notes that the ending point is not input upon starting the point-clicking process, the specification merely recites that the ending point is input and that the ending point is the closest in distance upon the starting of the point-clicking process. Appropriate correction is required.

9. Claims 19 and 20 depend from claim 18 and are accordingly rejected.

Claim Rejections - 35 USC § 103

10. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

11. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having

ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-17 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Park (US Pub. 2014/0135971), and further in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.

13. Regarding claim 1, Gardner discloses a method of creating digital clothing (Paragraph [0113]: *method of capturing the 3D representation of the garment is to provide a digital representation of the 2D pattern pieces, sized to fit The Model, and then to create a virtual r presentation of the garment in 3D by meands of a program such as Stitch from Size8 Software of Jacksonville, Fla. The advantage of the virtual representation is that the rlationship betewen the 2D pattern pieces and the 3D representation is known with precision, which increases the accuracy of the later unwrapping stage, and there is no missing data, which inevitably occurs with a 3D scan*), wherein the method is executable by a computing device comprising a computing element and a storage element storing patterns and draped digital clothing (Paragraph [0029]: *the present invention provides a method of processing information relating to a garment, the method comprising: providing or obtaining information defining the 3D shape of a garment designed to fit and as worn by a first body of a person of a first size and shape; providing or obtaining data defining the first body's size and shape in 3D without the garment in question; identifying defined body regions on the first body; identifying one or more design points on the garment, each design point being related in 3D to one or more of the defined body regions of the first body; providing relationship rules that define the said 3D relationships between said design points and said body regions; storing data defining the garment, the design points, the body regions, and the relationship rules*), the method comprising: setting a first selected segment by inputting the first selected segment to be sewn on a first segment on a pattern (Paragraph [0022]: *pattern pieces of the base garment are deformed to collide with a 3D*

human model and with each other, and are then virtually sewn together. This provides a 3D representation of the base garment fitted to a first human model. The first human model is deformed to match the shape/size of a consumer, and the base garment is modified simply by deforming the 3D representation of the base garment in a similar manner to the first human model. The 3D representation of the modified garment can be used for visualisation ("virtual try-on"), and/or as the basis for generating 2D pattern pieces for production of the modified garment. The document describes the 2D pattern pieces being generated by developing the corresponding 3D parts of the 3D representation into 2D shapes. This system relies on colliding base garment pattern pieces with the standard body shape and modifying the resultant 3D representation of the base garment on the basis of a geometrical deformation of the standard body shape to match a consumer body shape. This relatively simple approach provides no guarantee that the modified garment will preserve the design or style of the base garment, or that pattern pieces developed from the modified 3D representation of the garment will be capable of being assembled to produce an acceptable garment).

Gardner does not explicitly disclose setting a second selected segment, which comprises: detecting a current cursor position; inputting a starting point of the second selected segment onto at least one second segment, which is to be sewn to the first selected segment; inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments ; and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

However, Park teaches sewing of digital clothing (Paragraph [0004]), further comprising detecting a current cursor position (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section.*

Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view); inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments (Fig. 9; Paragraph [0052]: *the process information input interface 900 enables a user to set start and end positions in each process section. For example, a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900, but the present embodiment is not limited thereto. In an embodiment, a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view of FIG. 9*). Park teaches that this enables a user to set start and end positions in each process section (Paragraph [0052]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner with the features above as taught by Park.

Further, Sareen teaches virtual garment creating and storage based on the received garment specifications and fabric constants (Paragraph [0003]), further comprising setting a second selected segment, which comprises: inputting a starting point of the second selected segment onto at least one second segment, which is to be sewn to the first selected segment (Fig. 8; Paragraph [0040]: *from the digital pattern 57, production sample garment 59, technical pack 54, grading rules 53, fit model scan data or body measurements 58, and/or paper pattern 51 received from the retailer 50, digital pattern pieces are created, or converted from digital*

pattern 57, using the apparel product development software 114. Generally, a pattern refers to the collection of the individual pieces of the garment 59. In standard practice, the pattern pieces are drafted first, then laid over fabric, which is then cut around the perimeter of each piece. The resulting pieces of fabric are then sewn together to form the finished garment); inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point (Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*); and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point (Paragraph [0079]: *step 362, E-FIT assigns sewing instructions. In this step, E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0082]: *Sewing and draping may be completed using functions provided by CLOTHFX and native E-FIT according to the sewing instructions assigned above. Often, garments have lining and/or layers of material. In such cases, layers may be placed, stitched, and draped in a specific order*). Sareen teaches that this will allow for user to make custom patterns and therefore custom garments for the consumer (Paragraph [0209]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner, in view of Park with the features above as taught by Sareen.

14. Regarding claim 2, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1, Gardner discloses wherein the first and second segments are at least one of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles (Fig. 1; Fig. 11; Paragraph [0461]: *the Pattern Maker working in 3D would be provided with the upper arm measurement and the total size round its perimeter of the armhole*; Paragraph

[0477]: *bottom of the yoke can be straight, square, curved or almost any shape imaginable. This profusion of designs makes it inappropriate to attempt to provide any standard set of design points. The design points set out below are therefore used only to indicate the principles of 3D Tailoring of Yokes*).

15. Regarding claim 3, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1, wherein the setting of the second selected segment further comprises, between the inputting of the starting point and the inputting of the ending point: displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment (Gardner: Paragraph [0120]: *construction lines (where present), the matching of the Design Points on different pattern pieces and the knowledge base of completed garments makes it possibl for an initial rough juxtapositioning of the pattern pieces to be carried out automatically, although the capability to carry out a manual juxtapositioning would be present as a fall-back*), a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point (Sareen: Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*; Paragraph [0079]: *E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*).

16. Regarding claim 4, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 3, Park discloses wherein the setting of the second selected segment further comprises: in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to

a position of the determined candidate for the ending point and displaying the cursor position (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view*; Paragraph [0054]: *process list 1150 of FIG. 11 may predict process time on the basis of a stitch length, a number of stitches, start and end positions of each process section, a number of yarn cuttings, a number of yarn cuttings set in a sewing manufacturing device, and a number of sewing manufacturing devices involved in each corresponding process; predict process cost on the basis of daily working conditions and the number of workers; and display the predicted process time and the predicted process cost*).

17. Regarding claim 5, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 3, Gardner discloses wherein the setting of the second selected segment further comprises: calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position (Figs. 3-16; Paragraph [1101]: *Constraints between and within pattern pieces In order f r a garment to be constructible it is necessary to impose constraints between pattern pieces. In the case of the pattern piec f FIG. 32 there is a piece to the left, mirroring the one we see and the distance FG is constrained to be equal to the same length on the other piece. Similarly AB and BC are constrained to have lengths matching their companion seams*).

18. Regarding claim 6, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 3, Sareen discloses wherein the setting of the second selected segment further

comprises: displaying a difference value between the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to the point that is on the second segment and that is the closest in distance to the current cursor position (Paragraphs [0188]-[0189]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value. In another embodiment, the stretch value may be calculated for many garment measurements… data may also include calculating the change in stretch in a similar fashion as described above, but with initial value set to the stretch value of the base size, and the final value being the stretch value of the selected size (if other than the base size). Furthermore, quantitative data may also include calculating the stretch value for specific points of measure, rather than for the entire garment, and then comparing them with the initial 3D virtual garment measurements from fit model drape*).

19. Regarding claim 7, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 6, Park discloses wherein the setting of the second selected segment further comprises: in response to the difference value being greater than a reference value, displaying a warning sign (Paragraph [0015]: *manufacturing management method which includes receiving design information on an end product to be manufactured by sewing; configuring at least one component shape of the end product based on the design information; identifying one or more processes necessary for manufacturing the end product based on analysis of the one or more component shapes; enabling a user to select one process from the one or more processes; enabling a user to select one process from the processes; providing one or more process task charts related to the one or more processes; predicting at least one of process time and process cost for the selected process, on the basis of the sewing information and the sewing data;*

transmitting at least one of the sewing information and the sewing data to at least one sewing manufacturing device through a network; receiving a device status message from the at least one sewing manufacturing device, the device status message including an abnormal status message indicating that a status of the at least one sewing manufacturing device is abnormal; providing at least one of text data and multi-media data to address the abnormal status based on the abnormal status message; and transmitting an A/S request message to a sewing manufacturing device provider based on the abnormal status message; Paragraphs [0022]-[0026]: *the sewing information process module 126 enables the user to easily input sewing information on each process. Sewing information received at the sewing information process module 126 may include a stitch shape, a member to be used in each sewing processing section, a type and color of yarn, a needle, a stitch length, a total number of stitches, a start and end position of each section, an accessory attachment type, and other guidelines/cautions of sewing, but the present embodiment is not limited thereto. The sewing information process module 126 may separately store sewing information, which is received from a user, for each section in each process… sewing data process module 128 enables a user to provide sewing data, which is required for performing a corresponding sewing process, based on the sewing information stored in the sewing information process module 126. The sewing data may include a plurality of parameters for executing a component stitch pattern for each sewing process, and specifically include a stitch width, a number of stitches, an upper yarn tension, a sewing speed, a sewing machine foot pressure, etc., but the sewing data is not limited thereto. The sewing parameters may need to be adjusted according to the sewing manufacturing device that is used in a corresponding sewing process, and thus, the sewing data process module 128 may allow a user to select a sewing manufacturing device to be used. When a sewing manufacturing device that a user desires to use is not available, the sewing data process module 128 may transmit an inquiry or a request for a corresponding sewing manufacturing device to a provider…A/S module 138 may receive a device status message from the sewing manufacturing devices 190-*

1 to 190-n over the second network 152. The device status message may include an abnormal status message indicating that the status of the sewing manufacturing devices 190-1 to 190-n is abnormal, and the abnormal status message may include information to recognize each of the sewing manufacturing devices 190-1 to 190-n and provide details about the abnormal status. The A/S module 138 may provide the sewing manufacturing devices 190-1 to 190-n over the second network 152 with information necessary to address the abnormal status based on the details, for example, in the form of text data or multimedia data. In accordance with the information included in the text data or the multimedia data, the sewing manufacturing devices 190-1 to 190-n may be adjusted or configured by taking appropriate measures).

20. Regarding claim 8, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 7, Sareen discloses wherein the displaying of the warning sign comprises: in response to the difference value being greater than the reference value, displaying the warning sign by changing colors of the calculated length and the difference value (Paragraphs [0188]-[0190]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value…an example web page produced by the system illustrates how stretch values may be visually displayed using a color tension map. These color tension maps can be viewed in any image format, on the web, or in any standard image viewing software. The color maps may also be viewable using 3D Viewer Application 82. The color tension map displays high stretch values in red, low stretch values in green, and negative stretch values in blue. data may include visual images of consumer drape 1102. Qualitative data may include a visual representation or image of the consumer drape using a color tension map to show the parts of the garment that are fitting tight, loose, or well. The color tension maps may be configured to show stretch values in*

certain directions with respect to the grain line of the fabric. For instance, a color tension map which display stretch values along the warp direction may be very different than a color tension map which displays stretch values along the weft or bias directions).Regarding claim 9, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1, Gardner discloses wherein the method is executed in non-volatile storage media storing a computer program to which the method is applied (Paragraph [1114]: *Such data could be downloaded to the central database 50. However, for reasons of customer privacy and confidentiality, it is preferred that this data is uniquely stored on a data carrier 58 which remains within the custody and control of the customer, with the only data passing to the central database 50 being an identification code identifying that customer. The data carrier 58 may be any convenient storage means such as a floppy disc, CD-ROM or smart card*).

21. Regarding claim 10, the limitations of this claim substantially correspond to the limitations of claim 1; thus they are rejected on similar grounds.

22. Regarding claim 11, the limitations of this claim substantially correspond to the limitations of claim 2; thus they are rejected on similar grounds.

23. Regarding claim 12, the limitations of this claim substantially correspond to the limitations of claim 3; thus they are rejected on similar grounds.

24. Regarding claim 13, the limitations of this claim substantially correspond to the limitations of claim 4; thus they are rejected on similar grounds.

25. Regarding claim 14, the limitations of this claim substantially correspond to the limitations of claim 5; thus they are rejected on similar grounds.

26. Regarding claim 15, the limitations of this claim substantially correspond to the limitations of claim 6; thus they are rejected on similar grounds.

27. Regarding claim 16, the limitations of this claim substantially correspond to the limitations of claim 7; thus they are rejected on similar grounds.

28. Regarding claim 17, the limitations of this claim substantially correspond to the limitations of claim 8; thus they are rejected on similar grounds.

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D SALVUCCI whose telephone number is (571)270-5748. The examiner can normally be reached on M-F: 7:30-4:00PT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, XIAO WU can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

CPC - Searched*		
Symbol	Date	Examiner
G05B2219/2626 + text	07/22/2020	MDS
G05B2219/45195 + text	07/22/2020	MDS

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST search file attached	07/22/2020	MDS
Google scholar search conducted	07/22/2020	MDS
Inventor search	07/22/2020	MDS
Interference search	07/22/2020	MDS
Updated search results in EAST	12/04/2020	MDS
Updated search results in EAST	04/30/2021	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
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	MATTHEW D SALVUCCI	2613

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G05B	2219/2626 + text	07/22/2020	MDS
G05B	2219/45195 + text	07/22/2020	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	07/22/2020	12/04/2020	04/30/2021						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	✓	✓						
	4	✓	✓	✓						
	5	✓	✓	✓						
	6	✓	✓	✓						
	7	✓	✓	✓						
	8	✓	✓	✓						
	9	✓	✓	✓						
	10	✓	✓	✓						
	11	✓	✓	✓						
	12	✓	✓	✓						
	13	✓	✓	✓						
	14	✓	✓	✓						
	15	✓	✓	✓						
	16	✓	✓	✓						
	17	✓	✓	✓						
	18			✓						
	19			✓						
	20			✓						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	36	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L4	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L5	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L6	1	("20160314604").PN.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:22
L7	521	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L8	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L9	30	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR	US-PGPUB; USPAT; USOCR;	OR	OFF	2021/04/30 10:22

		textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L10	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L11	2	(("20130057544") or ("20160078650")).PN.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:22
L12	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L13	106	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L14	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L15	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L16	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/04/30 10:22

		begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	DERWENT; IBM_TDB			
L17	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:22
L18	68	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L19	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L20	233	(stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L21	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L22	45	L21 NOT L19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L23	254	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes	US-PGPUB; USPAT;	OR	OFF	2021/04/30 10:23

		OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L24	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L25	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L26	199	L23 NOT (L25 L24)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L27	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L28	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L29	122	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/04/30 10:23

		CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	DERWENT; IBM_TDB			
L30	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L31	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L32	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L33	8	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L34	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L35	59	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/04/30 10:23

			DERWENT; IBM_TDB			
L36	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L37	138	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L38	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L39	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L40	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L41	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L42	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L43	8,258	(Seung Woo).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2021/04/30 10:23

L44	36	(Seung Woo NEAR3 OH).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2021/04/30 10:23
L45	4	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L46	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L47	181	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L48	145	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L49	78	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L50	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2021/04/30 10:23

		(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	JPO; DERWENT; IBM_TDB			
L51	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L52	16	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L53	39	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L54	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L55	59	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23
L56	31	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/04/30 10:23

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L57	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L58	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L59	3	(G05B2219/2626 G05B2219/45195).CPC. AND ((stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L60	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23
L61	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/04/30 10:23

4/30/2021 10:39:26 AM
C:\Users\msalvucci\Documents\EAST\Workspaces\16925878_DigitalFabricSewing.wsp

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT UNDER 37 C.F.R. § 1.111

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Office Action mailed May 14, 2021. Reconsideration and allowance of the claims is respectfully requested in view of the amendments and the remarks.

Amendments to the Claims are reflected in the listing of the claims that begins on page **2** of this Paper.

Remarks begin on page **6** of this Paper.

IN THE CLAIMS

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is listed with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please **AMEND** claims 1-5, **CANCEL** claims 6-20, and **ADD** claims 21-26, as follows:

1. (Currently Amended) A method of creating digital clothing~~, wherein the method is~~ executable by a computing device ~~comprising a computing element and a storage element~~ storing ~~patterns and draped~~ digital clothing patterns for draping simulation, the method comprising:

setting a ~~first selected segment by inputting the~~ first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment, ~~which comprises:~~comprising

~~inputting~~setting a starting point of the second selected segment ~~onto at least one~~ on a second segment, ~~which~~wherein the second selected segment is ~~to be~~ sewn to the first selected segment~~;~~,

~~detecting~~displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,

determining a present point on the second selected segment based on a current cursor position~~;~~,

~~inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position~~

~~is closest to the second segment that includes the input starting point, among a plurality of second segments; and~~

moving the present point to the candidate ending point, in response to the difference between the present point and the candidate ending point being less than a reference value,

selecting the present point as an ending point of the second selected segment, in response to a user input, and

setting~~,~~ as the second selected segment, a section of the second segment between the ~~input~~ starting point and the ~~input~~ ending point.

2. (Currently Amended) The method of claim 1, wherein the first and second segments ~~are at least one~~comprise any one or any combination of any two or more of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. (Currently Amended) The method of claim 1, wherein the setting of the second selected segment further comprises~~, between the inputting of the starting point and the inputting of the ending point~~:

~~displaying a candidate for the ending point by determining, as the candidate for the ending point of the second selected segment, a point, which is the closest in distance to the current detected cursor position and which makes the second selected segment a same as a length of the first selected segment along the second segment that includes the input starting point, wherein the second selected segment is made by connecting the input starting point to such a point.~~

calculating and displaying either one or both of the length of the first selected segment and the length of the line.

4. (Currently Amended) The method of claim ~~3~~1, further comprising displaying a warning sign, in response to the difference value being greater than a third reference value~~wherein the setting of the second selected segment further comprises:~~

~~in response to a difference between the current cursor position and the determined candidate for the ending point being lower than a reference value, moving the cursor position to a position of the determined candidate for the ending point and displaying the cursor position~~.

5. (Currently Amended) The method of claim ~~3~~4, wherein the displaying of the warning sign comprises:

displaying the warning sign by changing at least one of colors of the length of the line or the difference value~~wherein the setting of the second selected segment further comprises:~~

~~calculating and displaying at least one of: the length of the first selected segment and a length of a line, which is acquired by connecting the starting point, input along the second segment, to a point that is on the second segment and that is the closest in distance to the current cursor position~~.

6-20. (Canceled)

21. (New) A non-transitory computer-readable storage medium storing instructions that, when executed by a processor, cause the processor to perform the method of claim 1.

22. (New) An apparatus for creating digital clothing, the apparatus comprising:

a memory storing digital clothing patterns for draping simulation; and

at least one processor configured to:

set a first selected segment to be sewn on a first segment on a pattern; and

set a second selected segment by:

setting a starting point of a second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment,

display a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,

determine a present point on the second selected segment based on a current cursor position,

move the present point to the candidate ending point, in response to the difference between the present point and the candidate ending point being less than a reference value,

select the present point as an ending point of the second selected segment, in response to a user input, and

set as the second selected segment, a section of the second segment between the starting point and the ending point.

23. (New) The apparatus of claim 22, wherein the first and second segments comprise any one or any combination of any two or more of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

24. (New) The apparatus of claim 22, further comprising:

a length display configured to calculate and display either one or both of the length of the first selected segment and the length of the line.

25. (New) The apparatus of claim 22, wherein the second selected segment setter is further configured to:

display a warning sign, in response to the difference value being greater than a third reference value.

26. (New) The apparatus of claim 25, wherein the second selected segment setter is configured to display the warning sign by changing at least one of colors of the length of the line or the difference value.

REMARKS

At the outset, the Office is thanked for the review and consideration of the pending application. The Office Action mailed May 14, 2021 has been received and its contents reviewed. Reconsideration of the pending application is respectfully requested in view of the amendments and the following remarks.

Claims 1-17 and 19-20 are currently under examination, of which claims 1 and 10 are independent claims.

In accordance with the foregoing, claims 1-5 have been amended. Claims 6-20 have been canceled without prejudice or disclaimer to the underlying subject matter. Claims 21-26 have been added without adding new subject matter. Applicants have amended the claims solely to further prosecution of the disclosed embodiments, and not in response to the merits of the outstanding rejections. Applicants reserve the right to prosecute broader claims or embodiments, including the original claims, in this application or a continuing application derived therefrom.

Claim Rejections - 35 USC § 112

Claims 18-20 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement.

The claims have now been amended to obviate the rejection.

Claim Rejections Under 35 USC §103

Claims 1-17 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Park (US Pub. 2014/0135971), and further in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.

These rejections are respectfully traversed.

Independent Claims 1 and 10

Claim 1 recites a method of creating digital clothing executable by a computing device storing digital clothing patterns for draping simulation, the method comprising: setting a first

selected segment to be sewn on a first segment on a pattern; and setting a second selected segment. The setting of the second selected segment comprises setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment, displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment, determining a present point on the second selected segment based on a current cursor position, moving the present point to the candidate ending point, in response to the difference between the present point and the candidate ending point being less than a reference value, selecting the present point as an ending point of the second selected segment, in response to a user input, and setting as the second selected segment, a section of the second segment between the starting point and the ending point.

It is respectfully submitted that full combinations of features in independent claim 1 are nowhere disclosed or suggested by the cited references. In setting forth the rejection, the Office readily acknowledged that Gardner does not explicitly disclose setting a second selected segment; however, Park was cited as disclosing such feature. The Office stated that Park discloses

> inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments (Fig. 9; Paragraph [0052]: *the process information input interface 900 enables a user to set start and end positions in each process section. …Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view of FIG. 9*)

See Office Action at page 7. Applicants respectfully disagree that Park discloses the claimed ending point, especially in view of the clarified claims.

In Park, "a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900." *See* Park at ¶ 0052. Park discloses that for **setting an end position**:

> the user may click the end position setting button 912-2, move the

> pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position.

Id. Thus, in Park, the end position is set by a user's click of a mouse at a desired end position, as opposed to being based on a criteria, as recited in claim 1. Notwithstanding the aforesaid, Park does not disclose

> setting a second selected segment, comprising
> setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment,
> displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,
> determining a present point on the second selected segment based on a current cursor position,
> moving the present point to the candidate ending point, in response to the difference between the present point and the candidate ending point being less than a reference value,
> selecting the present point as an ending point of the second selected segment, in response to a user input, and
> setting as the second selected segment, a section of the second segment between the starting point and the ending point

as recited in claim 1.

Sareen discloses adding marks to define starting and ending points of the segments that will be sewn. However, Sareen does not disclose that the ending point is input as a point on a second segment that includes an input starting point, closest to a current cursor position. Sareen also does not disclose that the inputting occurs when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments. Although Sareen discloses using "E-FIT," Sareen does not disclose that E-FIT performs such a function. Instead, Sareen discloses that E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together. *See* Sareen at paragraph 0049. Therefore, Sareen does not disclose "inputting, as an ending point, a point, on the second segment that includes the input starting point, closest to the current cursor position, when the current cursor position is closest to the second segment that includes the input starting point, among a plurality of second segments."

Applicants respectfully submit that the combination of Gardner, Park and Sareen does not disclose or suggest

> setting a second selected segment, comprising

setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment,

displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,

determining a present point on the second selected segment based on a current cursor position,

moving the present point to the candidate ending point, in response to the difference between the present point and the candidate ending point being less than a reference value,

selecting the present point as an ending point of the second selected segment, in response to a user input, and

setting as the second selected segment, a section of the second segment between the starting point and the ending point

in combination with all the remaining elements in claim 1.

In view of the above discussions regarding the actual disclosures of Gardner, Park and Sareen, it is respectfully submitted that neither of Gardner, Park nor Sareen, nor any combination of the same, would disclose or suggest all the features of claim 22.

Dependent Claims 2-5, 21, and 23-26

Dependent claims 2-5, 21, and 23-26 are in allowable condition, at least, based on their dependencies from allowable independent claims 1 and 22, respectively, and for the additional features they recite.

Applicants therefore respectfully request withdrawal of the 35 USC 103 rejections.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and timely allowance of all pending claims. Should the Office believe anything further is required to place the application in condition for allowance, the Examiner is requested to contact the Applicant's representative at the telephone number listed below.

In the event this paper is not being filed timely, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees that may be required for this paper, and any other documents filed concurrently with this paper, may be charged to North Star Intellectual Property Law, PC's Deposit Account No. 50-5113.

Respectfully submitted,

Date: September 14, 2021

/Wale T. Godo/
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Electronic Acknowledgement Receipt	
EFS ID:	43757362
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	14-SEP-2021
Filing Date:	10-JUL-2020
Time Stamp:	11:27:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		OA20210514_3040520001C1_AmendasFiled.pdf	56422 e6ca6b6bea3c881de7f4697b3c2641387f18d972	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	10
Warnings:			
Information:			
	Total Files Size (in bytes):	56422	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/925,878	Filing Date 07/10/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	09/14/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/VINCENT S BUTLER/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Sale Item Reference Number	Effective Date
16925878	09/14/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20219FL39282992	1251	EXTENSION FOR RESPONSE WITHIN 1ST MONTH	$220.00	Deposit Account

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 10/04/2021

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
10/04/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pto.nsip@gmail.com
pto@nsiplaw.com

Office Action Summary	Application No. 16/925,878	Applicant(s) Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 14 September 2021.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-5 and 21-26 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-4 and 21-25 is/are rejected.

8) ☑ Claim(s) 5 and 26 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☑ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Applicant's amendments filed on 14 September 2021 have been entered. Claims 1-5 have been amended. Claims 6-20 have been canceled. Claims 21-26 have been added. Claims 1-5 and 21-26 are still pending in this application, with claims 1, 21, and 22 being independent.

Response to Arguments

2. Applicant's arguments filed 14 September 2021 have been fully considered but they are not persuasive. Applicant broadly states that the references do not teach the entirety of the independent claims, stating that "*In Park, "a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900." See Park at J 0052. Park discloses that for setting an end position: the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. Id. Thus, in Park, the end position is set by a user's click of a mouse at a desired end position, as opposed to being based on a criteria, as recited in claim 1. Notwithstanding the aforesaid, Park does not disclose*", followed by the entirety of the claim. Thus, it is not clear which portions of the claim are being argued. Examiner notes that there is no such 'criteria' in the claimed limitations and that Park's teaching of a mouse click indeed corresponds to the claimed "*selecting the present point as an ending point of the second selected segment, **in response to a user input***" (**emphasis added**), given that a mouse click is indeed a user input. Thus, Examiner maintains that the cited references teach the limitations of the claims, as is outlined in the rejections below.

3. For the remaining claims, Applicant argues for their allowance for the same reasons. It follows that all remaining claim rejections or objections are maintained for at least the above reasons and those in the following detailed action.

Allowable Subject Matter

4. Claims 5 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

5. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

6. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-3 and 21-24 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Park (US Pub. 2014/0135971), and further in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.**

8. Regarding claim 1, Gardner discloses a method of creating digital clothing (Paragraph [0113]: *method of capturing the 3D representation of the garment is to provide a digital*

representation of the 2D pattern pieces, sized to fit The Model, and then to create a virtual r presentation of the garment in 3D by meands of a program such as Stitch from Size8 Software of Jacksonville, Fla. The advantage of the virtual representation is that the rlationship betewen the 2D pattern pieces and the 3D representation is known with precision, which increases the accuracy of the later unwrapping stage, and there is no missing data, which inevitably occurs with a 3D scan), executable by a computing device storing digital clothing patterns for draping simulation (Paragraph [0029]: *the present invention provides a method of processing information relating to a garment, the method comprising: providing or obtaining information defining the 3D shape of a garment designed to fit and as worn by a first body of a person of a first size and shape; providing or obtaining data defining the first body's size and shape in 3D without the garment in question; identifying defined body regions on the first body; identifying one or more design points on the garment, each design point being related in 3D to one or more of the defined body regions of the first body; providing relationship rules that define the said 3D relationships between said design points and said body regions; storing data defining the garment, the design points, the body regions, and the relationship rules*), the method comprising: setting a first selected segment to be sewn on a first segment on a pattern (Paragraph [0022]: *pattern pieces of the base garment are deformed to collide with a 3D human model and with each other, and are then virtually sewn together. This provides a 3D representation of the base garment fitted to a first human model. The first human model is deformed to match the shape/size of a consumer, and the base garment is mo dified simply by deforming the 3D representation of the base garment in a similar manner to the first human model. The 3D representation of the modified garment can be used for visualisation ("virtual try - on"), and/or as the basis for generating 2D pattern pieces for production of the modified garment. The document describes the 2D pattern pieces being generated by developing the corresponding 3D parts of the 3D representation into 2D shapes. This system relies on colliding base garment pattern pieces with the standard body shape and modifying the resultant 3D*

representation of the base garment on the basis of a geometrical deformation of the standard body shape to match a consumer body shape. This relatively simple approach provides no guarantee that the modified garment will preserve the design or style of the base garment, or that pattern pieces developed from the modified 3D representation of the garment will be capable of being assembled to produce an acceptable garment).

Gardner does not explicitly disclose setting a second selected segment, comprising: setting a starting point of the second selected segment on a second segment, wherein the second segment is sewn to the first selected segment; displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment, determining a present point on the second selected segment based on a current cursor position, moving the present point to the candidate ending point, in a response to the difference between the present point and the candidate ending point being less than a reference value, selecting the present point as an ending point of the second selected segment, in response to a user input, and setting, as the second selected segment, a section of the second segment between the input starting point and the input ending point.

However, Park teaches sewing of digital clothing (Paragraph [0004]), further comprising displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment, determining a present point on the second selected segment based on a current cursor position (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view*; Paragraph

[0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*; Paragraph [0079]: *E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0170]: *user may click on a link or a button with a mouse, or interact with a touch screen on the display of computer device*; Paragraphs [0188]-[0189]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value. In another embodiment, the stretch value may be calculated for many garment measurements… data may also include calculating the change in stretch in a similar fashion as described above, but with initial value set to the stretch value of the base size, and the final value being the stretch value of the selected size (if other than the base size). Furthermore, quantitative data may also include calculating the stretch value for specific points of measure, rather than for the entire garment, and then comparing them with the initial 3D virtual garment measurements from fit model drape*), moving the present point to the candidate ending point, in a response to the difference between the present point and the candidate ending point being less than a reference value, selecting the present point as an ending point of the second selected segment, in response to a user input (Fig. 9; Paragraph [0052]: *the process information input interface 900 enables a user to set start and end positions in each process section. For example, a start position setting button 912-1 and an end position setting button 912-2 may be provided to the process information input window 912 of the process information input interface 900, but the present embodiment is not limited thereto. In an embodiment, a user may click the start position*

setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view of FIG. 9; Paragraph [0054]: *process list 1150 of FIG. 11 may predict process time on the basis of a stitch length, a number of stitches, start and end positions of each process section, a number of yarn cuttings, a number of yarn cuttings set in a sewing manufacturing device, and a number of sewing manufacturing devices involved in each corresponding process; predict process cost on the basis of daily working conditions and the number of workers; and display the predicted process time and the predicted process cost*). Park teaches that this enables a user to set start and end positions in each process section (Paragraph [0052]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner with the features above as taught by Park.

Further, Sareen teaches virtual garment creating and storage based on the received garment specifications and fabric constants (Paragraph [0003]), further comprising setting a second selected segment, comprising: setting a starting point of the second selected segment on a second segment, wherein the second segment is sewn to the first selected segment (Fig. 8; Paragraph [0040]: *from the digital pattern 57, production sample garment 59, technical pack 54, grading rules 53, fit model scan data or body measurements 58, and/or paper pattern 51 received from the retailer 50, digital pattern pieces are created, or converted from digital pattern 57, using the apparel product development software 114. Generally, a pattern refers to the collection of the individual pieces of the garment 59. In standard practice, the pattern pieces are drafted first, then laid over fabric, which is then cut around the perimeter of each piece. The resulting pieces of fabric are then sewn together to form the finished garment*); displaying a candidate ending point of the second selected segment to make a length of the second selected

segment substantially equal to a length of the first selected segment, determining a present point on the second selected segment based on a current cursor position (Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*; Paragraph [0079]: *E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0170]: *user may click on a link or a button with a mouse, or interact with a touch screen on the display of computer device*; Paragraphs [0188]-[0189]: *stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. In other words, an initial garment measurement might yield one length. After draping the garment on an avatar, the draped garment measurement at the same location might have a length that has increased or decreased. In one embodiment, the percent difference in length for that specific measurement may be defined as the stretch value. In another embodiment, the stretch value may be calculated for many garment measurements… data may also include calculating the change in stretch in a similar fashion as described above, but with initial value set to the stretch value of the base size, and the final value being the stretch value of the selected size (if other than the base size). Furthermore, quantitative data may also include calculating the stretch value for specific points of measure, rather than for the entire garment, and then comparing them with the initial 3D virtual garment measurements from fit model drape*); inputting an ending point, which, upon starting a point-clicking process at the starting point located on a second segment, is the closest in distance to a point, where the point-clicking process occurs, on the second segment that includes the input starting point (Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*); and setting, as the second selected

segment, a section of the second segment between the input starting point and the input ending point (Paragraph [0079]: *step 362, E-FIT assigns sewing instructions. In this step, E-FIT matches each particular segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0082]: *Sewing and draping may be completed using functions provided by CLOTHFX and native E-FIT according to the sewing instructions assigned above. Often, garments have lining and/or layers of material. In such cases, layers may be placed, stitched, and draped in a specific order*). Sareen teaches that this will allow for user to make custom patterns and therefore custom garments for the consumer (Paragraph [0209]). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner, in view of Park with the features above as taught by Sareen.

9. Regarding claim 2, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1, Gardner discloses wherein the first and second segments comprise any one or any combination of any two or more of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles (Fig. 1; Fig. 11; Paragraph [0461]: *the Pattern Maker working in 3D would be provided with the upper arm measurement and the total size round its perimeter of the armhole*; Paragraph [0477]: *bottom of the yoke can be straight, square, curved or almost any shape imaginable. This profusion of designs makes it inappropriate to attempt to provide any standard set of design points. The design points set out below are therefore used only to indicate the principles of 3D Tailoring of Yokes*).

10. Regarding claim 3, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1, Gardner discloses wherein the setting of the second selected segment further comprises, calculating and displaying either one or both of the length of the first selected segment and the length of the line (Figs. 3-16; Paragraph [1101]: *Constraints between and within pattern pieces In order f r a garment to be constructible it is necessary to impose constraints between pattern pieces. In the case of the pattern piec f FIG. 32 there is a piece to*

the left, mirroring the one we see and the distance FG is constrained to be equal to the same length on the other piece. Similarly AB and BC are constrained to have lengths matching their companion seams).

11. Regarding claim 21, the limitations of this claim substantially correspond to the limitations of claim 1 (except for the non-transitory computer-readable storage medium and processor, which are disclosed by Park, Paragraph [0027]: *sewing design manufacturing management apparatus 110 according to an embodiment of the present disclosure may further include a central process module 120. The central process module 120 may control the elements of the sewing design manufacturing management apparatus 110 and issue a command, in order to perform a series of procedures necessary for the management of a sewing design. According to an embodiment of the present disclosure, the central process module 120 may be a general computer, a special purpose computer, a distributed processing system, or an independent operation processing device, but the present embodiment is not limited thereto*; Paragraph [0063]: *sewing design manufacturing management apparatus and method according to the embodiments of the present disclosure may be implemented with a computer program. The computer program may be stored in a computer-readable medium*); thus they are rejected on similar grounds.

12. Regarding claim 22, the limitations of this claim substantially correspond to the limitations of claim 1 (except for the processor, which is disclosed by Park, Paragraph [0027]: *sewing design manufacturing management apparatus 110 according to an embodiment of the present disclosure may further include a central process module 120. The central process module 120 may control the elements of the sewing design manufacturing management apparatus 110 and issue a command, in order to perform a series of procedures necessary for the management of a sewing design. According to an embodiment of the present disclosure, the central process module 120 may be a general computer, a special purpose computer, a*

distributed processing system, or an independent operation processing device, but the present embodiment is not limited thereto); thus they are rejected on similar grounds.

13. Regarding claim 23, the limitations of this claim substantially correspond to the limitations of claim 2; thus they are rejected on similar grounds.

14. Regarding claim 24, the limitations of this claim substantially correspond to the limitations of claim 3; thus they are rejected on similar grounds.

15. **Claims 4 and 25 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner, in view of Park, in view of Sareen, and further in view of Autodesk (NPL: AutoCAD Architecture 2011 User's Guide).**

16. Regarding claim 4, Gardner, in view of Park, and further in view of Sareen teaches the method of claim 1

Gardner, in view of Park, and further in view of Sareen does not explicitly disclose displaying a warning sign, in response to the difference value being greater than a third reference value.

However, Autodesk teaches CAD display of line segments (Pages 2089-2090), further comprising displaying a warning sign, in response to the difference value being greater than a third reference value (Pages 2089-2090: *When Straight Length is set to (user-defined), the stair length is equal to the dimension entered, and the other three values are adjusted within the code limits…When Riser Count is set to (user-defined), you can specify a value that is used to calculate the tread depth and riser height. If these values fall outside the stair limits, an error message is displayed*). Autodesk teaches that this will allow for lengths within set limits (Pages 2089-2090). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Gardner, in view of Park, and further in view of Sareen with the features above as taught by Autodesk.

17. Regarding claim 25, the limitations of this claim substantially correspond to the limitations of claim 4; thus they are rejected on similar grounds.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D SALVUCCI whose telephone number is (571)270-5748. The examiner can normally be reached on M-F: 7:30-4:00PT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, XIAO WU can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

Examiner-Initiated Interview Summary	**Application No.** 16/925,878	**Applicant(s)** Oh et al.		
	Examiner MATTHEW D SALVUCCI	**Art Unit** 2613	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
MATTHEW D SALVUCCI	Primary Examiner	Telephonic
WALE GODO	Attorney	

Date of Interview: 28 September 2021

Issues Discussed:

Proposed Amendment(s)

Examiner proposed amending the independent claims to incorporate the subject matter of claims 5 and 26 into their respective independent claims. No agreement was reached.

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Notice of References Cited	Application/Control No. 16/925,878	Applicant(s)/Patent Under Reexamination Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A					
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Autodesk, AutoCAD Architecture 2011 User's Guide, March 2010, Pages 2089-2090
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	**Art Unit**
	MATTHEW D SALVUCCI	2613

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	07/22/2020	12/04/2020	04/30/2021	09/29/2021					
	1	✓	✓	✓	✓					
	2	✓	✓	✓	✓					
	3	✓	✓	✓	✓					
	4	✓	✓	✓	✓					
	5	✓	✓	✓	O					
	6	✓	✓	✓	-					
	7	✓	✓	✓	-					
	8	✓	✓	✓	-					
	9	✓	✓	✓	-					
	10	✓	✓	✓	-					
	11	✓	✓	✓	-					
	12	✓	✓	✓	-					
	13	✓	✓	✓	-					
	14	✓	✓	✓	-					
	15	✓	✓	✓	-					
	16	✓	✓	✓	-					
	17	✓	✓	✓	-					
	18			✓	-					
	19			✓	-					
	20			✓	-					
	21				✓					
	22				✓					
	23				✓					
	24				✓					
	25				✓					
	26				O					

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

CPC - Searched*		
Symbol	**Date**	**Examiner**
G05B2219/2626 + text	07/22/2020	MDS
G05B2219/45195 + text	07/22/2020	MDS

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST search file attached	07/22/2020	MDS
Google scholar search conducted	07/22/2020	MDS
Inventor search	07/22/2020	MDS
Interference search	07/22/2020	MDS
Updated search results in EAST	12/04/2020	MDS
Updated search results in EAST	04/30/2021	MDS
Updated search results in EAST	09/29/2021	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G05B	2219/2626 + text	07/22/2020	MDS
G05B	2219/45195 + text	07/22/2020	MDS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	36	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L2	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L3	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L4	1	("20160314604").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:47
L5	521	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L6	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L7	30	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR	US-PGPUB; USPAT; USOCR;	OR	OFF	2021/09/29 10:47

		textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L8	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L9	2	(("20130057544") or ("20160078650")).PN.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:47
L10	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L11	106	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L12	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L13	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L14	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/09/29 10:47

		begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	DERWENT; IBM_TDB			
L15	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L16	68	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L17	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L18	235	(stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L19	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L20	45	L19 NOT L17	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L21	255	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes	US-PGPUB; USPAT;	OR	OFF	2021/09/29 10:47

		OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L22	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L23	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L24	200	L21 NOT (L23 L22)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L25	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L26	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L27	123	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/09/29 10:47

		CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	DERWENT; IBM_TDB			
L28	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L29	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L30	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L31	8	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L32	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L33	59	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/09/29 10:47

			DERWENT; IBM_TDB			
L34	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:47
L35	138	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L36	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L37	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L38	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L39	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L40	1	("20180025539").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:47
L41	8,469	(Seung Woo).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2021/09/29 10:47

L42	40	(Seung Woo NEAR3 OH).IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2021/09/29 10:47
L43	4	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L44	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L45	181	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L46	146	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L47	78	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L48	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2021/09/29 10:47

		(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	JPO; DERWENT; IBM_TDB			
L49	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L50	16	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L51	39	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L52	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L53	59	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:47
L54	31	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L60	29	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1	US-PGPUB; USPAT;	OR	OFF	2021/09/29 10:48

		OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND @AD<"20160721"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L61	1	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L62	2	(computer-aided NEAR (drafting drawing) CAD) AND (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L63	43	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L64	881	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L65	4	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L66	75	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/09/29 10:48

			DERWENT; IBM_TDB			
L67	110	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L68	29	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48
L69	16	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/09/29 10:48

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L55	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:48
L56	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:48
L57	3	(G05B2219/2626 G05B2219/45195).CPC. AND ((stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:48

L58	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:48
L59	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	US-PGPUB; USPAT	OR	OFF	2021/09/29 10:48

9/29/2021 11:07:26 AM
C:\Users\msalvucci\Documents\EAST\Workspaces\16925878_DigitalFabricSewing.wsp

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT UNDER 37 C.F.R. § 1.116

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Office Action mailed October 4, 2021. Reconsideration and allowance of the claims is respectfully requested in view of the amendments and the remarks.

Amendments to the Claims are reflected in the listing of the claims that begins on page **2** of this Paper.

Remarks begin on page **6** of this Paper.

IN THE CLAIMS

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is listed with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please **AMEND** claims 1, 3, 22, and 24, and **CANCEL** claims 5 and 26, as follows:

1. (Currently Amended) A method of creating digital clothing executable by a computing device storing digital clothing patterns for draping simulation, the method comprising:

setting a first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment comprising

setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment,

~~displaying a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,~~

determining a present point on the second ~~selected~~ segment based on a current cursor position,

moving the present point to ~~the~~ a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value, wherein the candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment,

selecting the present point as an ending point of the second selected segment, in response to a user input, and

setting as the second selected segment, a section of the second segment between the starting point and the ending point.

wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and

wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color.

2. (Previously Presented) The method of claim 1, wherein the first and second segments comprise any one or any combination of any two or more of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

3. (Currently Amended) The method of claim 1, wherein the setting of the second selected segment further comprises:

calculating ~~and displaying~~ either one or both of the length of the first selected segment and the length of the ~~line~~second selected segment.

4. (Previously Presented) The method of claim 1, further comprising displaying a warning sign, in response to the difference value being greater than a third reference value.

5-20. (Canceled)

21. (Previously Presented) A non-transitory computer-readable storage medium storing instructions that, when executed by a processor, cause the processor to perform the method of claim 1.

22. (Currently Amended) An apparatus for creating digital clothing, the apparatus comprising:

a memory storing digital clothing patterns for draping simulation; and

at least one processor configured to:

set a first selected segment to be sewn on a first segment on a pattern; and

set a second selected segment by:

setting a starting point of a second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment,

~~display a candidate ending point of the second selected segment to make a length of the second selected segment substantially equal to a length of the first selected segment,~~

determine a present point on the second ~~selected~~ segment based on a current cursor position,

move the present point to ~~the~~a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value, wherein the candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment,

select the present point as an ending point of the second selected segment, in response to a user input, and

set as the second selected segment, a section of the second segment between the starting point and the ending point,

wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and

wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color.

23. (Previously Presented) The apparatus of claim 22, wherein the first and second segments comprise any one or any combination of any two or more of a straight line, a curved line, a multi-branch line, and shapes that include polygons and circles.

24. (Currently Amended) The apparatus of claim 22, further comprising:

a length display configured to calculate ~~and display~~ either one or both of the length of the first selected segment and the length of the ~~line~~second selected segment.

25. (Previously Presented) The apparatus of claim 22, wherein the second selected segment setter is further configured to:

display a warning sign, in response to the difference value being greater than a third reference value.

26. (Canceled)

REMARKS

At the outset, the Office is thanked for the review and consideration of the pending application. The Office Action mailed October 4, 2021 has been received and its contents reviewed. Reconsideration of the pending application is respectfully requested in view of the amendments and the following remarks.

Claims 1-5 and 21-26 are currently under examination, of which claims 1 and 22 are independent claims.

In accordance with the foregoing, claims 1, 3, 22, and 24 have been amended. Claims 5 and 26 have been canceled without prejudice or disclaimer to the underlying subject matter. Applicants have amended the claims solely to further prosecution of the disclosed embodiments, and not in response to the merits of the outstanding rejections. Applicants reserve the right to prosecute broader claims or embodiments, including the original claims, in this application or a continuing application derived therefrom.

Allowable Subject Matter

Claims 5 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants thank the Office for indicating allowable subject matter if the claims are rewritten in independent form including all the limitations of the base claim and any intervening claims. Accordingly, the independent claims have been amended to include allowable claims 5 and 26. Thus, allowance of the claims is respectfully requested.

Claim Rejections Under 35 USC §103

Claims 1-3 and 21-24 stand rejected under 35 U.S.C. 103 as being unpatentable over Gardner et al. (US Pub. 2004/0049309), hereinafter Gardner, in view of Park (US Pub. 2014/0135971), and further in view of Sareen et al. (US Pub. 2011/0298897), hereinafter Sareen.

Claims 4 and 25 are rejected under 35 U.S.C. 103 as being unpatentable over Gardner, in view of Park, in view of Sareen, and further in view of Autodesk (NPL: AutoCAD Architecture 2011 User's Guide).

These rejections are respectfully traversed.

Independent Claims 1 and 10

Claim 1 recites a method of creating digital clothing executable by a computing device storing digital clothing patterns for draping simulation, the method comprising: setting a first selected segment to be sewn on a first segment on a pattern; and setting a second selected segment comprising setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment, determining a present point on the second segment based on a current cursor position, moving the present point to a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value. The candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment, selecting the present point as an ending point of the second selected segment, in response to a user input, and setting as the second selected segment, a section of the second segment between the starting point and the ending point. When the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color. When the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color.

It is respectfully submitted that full combinations of features in independent claim 1 are nowhere disclosed or suggested by the cited references. The Office stated that Park discloses

> (Fig. 9; Paragraph [0052]: *a user may click the start position setting button 912-1, move a pointing device to a desired position in the zoom view 904, and click the desired position, thereby setting a start position of a corresponding process section. Similarly, the user may click the end position setting button 912-2, move the pointing device to a desired end position in the zoom view 904, and click the desired end position, thereby setting the end position. As an example, the set start position and end position are displayed on the zoom view*; Paragraph [0069]: *stitch segments may be assigned in the digital pattern 180. Segments may be defined so that they can be sewn in E-FIT. Marks may be added to the digital pattern 180 to define the starting and ending point of the segments that will be sewn*; Paragraph [0079]: *E-FIT matches each particular*

> *segment of a 3D mesh corresponding to a particular piece to another segment on the same 3D mesh, or to another 3D piece, in accordance with how the garment is supposed to be sewn together*; Paragraph [0170]: *user may click on a link or a button with a mouse, or interact with a touch screen on the display of computer device*

See Office Action at pages 6-7. Applicants respectfully disagree that Park discloses the claimed second segment, especially in view of the clarified claims.

Sareen purportedly recognizes that stretch may be calculated by measuring the percent difference in a specific measurement before and after the drape. However, Applicants respectfully submit that the stretch of Sareen would equally apply to the segments being sewn.

Autodesk (NPL: AutoCAD Architecture 2011 User's Guide) purportedly discloses displaying a warning sign, in response to the difference value being greater than a third reference value. Even assuming *arguendo* that the Office's assertion about Autodesk is correct, Autodesk still fails to remedy the noted deficiencies of Gardner, Park and Sareen.

Applicants respectfully submit that the combination of Gardner, Park, Sareen, and Autodesk does not disclose or suggest

> moving the present point to ~~the~~ a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value, wherein the candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment…
>
> wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and
>
> wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color

in combination with all the remaining elements in claim 1.

In view of the above discussions regarding the actual disclosures of Gardner, Park and Sareen, it is respectfully submitted that neither of Gardner, Park nor Sareen, nor any combination of the same, would disclose or suggest all the features of claim 22.

Dependent Claims 2-4, 21, and 23-25

Dependent claims 2-4, 21, and 23-25 are in allowable condition, at least, based on their dependencies from allowable independent claims 1 and 22, respectively, and for the additional features they recite.

Applicants therefore respectfully request withdrawal of the 35 USC 103 rejections.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and timely allowance of all pending claims. Should the Office believe anything further is required to place the application in condition for allowance, the Examiner is requested to contact the Applicant's representative at the telephone number listed below.

In the event this paper is not being filed timely, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees that may be required for this paper, and any other documents filed concurrently with this paper, may be charged to North Star Intellectual Property Law, PC's Deposit Account No. 50-5113.

Respectfully submitted,

Date: December 6, 2021

/Wale T. Godo/
Wale T. Godo
Registration No. 75,219

NSIP Law
1120 Connecticut Avenue, NW, Suite 304
Washington, DC 20036
Telephone (202) 429-0020 x124
Facsimile (202) 315-3758

Electronic Acknowledgement Receipt	
EFS ID:	44439619
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	06-DEC-2021
Filing Date:	10-JUL-2020
Time Stamp:	12:20:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		FOA20211004_3040520001C1_AmendasFiled.pdf	66871 da8bc7dd066dd8cdf1198cedb3003f0a106d41fe	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response After Final Action	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	9
Warnings:			
Information:			
	Total Files Size (in bytes):	66871	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/925,878	Filing Date 07/10/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/07/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 9	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/VINCENT S BUTLER/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 01/06/2022

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
01/06/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pto.nsip@gmail.com
pto@nsiplaw.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 16/925,878	**Applicant(s)** Oh et al.	
	Examiner MATTHEW D SALVUCCI	**Art Unit** 2613	**AIA (FITF) Status** Yes

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 06 December 2021 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☑ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: See Continuation Sheet (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The amendments change the scope in a way that has not yet been examined and would require further search and consideration..
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:5 and 26.
    Claim(s) rejected:1-4 and 21-25.
    Claim(s) withdrawn from consideration:_____.

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Continuation of 3. NOTE: The amendments change the scope in a way that has not been examined and would require further search and consideration.

DO NOT ENTER: /M.S./ 01/03/2022

Docket No. 304052.0001C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Seung Woo Oh

Application No. 16/925,878 Art Unit: 2613

Confirmation No. 1069

Filed: 07/10/2020 Examiner: Matthew D Salvucci

FOR: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

AMENDMENT UNDER 37 C.F.R. § 1.116

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following amendments and remarks are respectfully submitted in response to the Office Action mailed October 4, 2021. Reconsideration and allowance of the claims is respectfully requested in view of the amendments and the remarks.

Amendments to the Claims are reflected in the listing of the claims that begins on page **2** of this Paper.

Remarks begin on page **6** of this Paper.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/925,878	Filing Date 07/10/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/18/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 9	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ALLYSON PURNELL/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16/925,878	Filing Date	2020-07-10	Docket Number (if applicable)	304052.0001C1	Art Unit	2613
First Named Inventor	Seung Woo Oh			Examiner Name	Matthew D Salvucci		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505113

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Wale T. Godo/	Date (YYYY-MM-DD)	2022-01-18
Name	Wale T. Godo	Registration Number	75219

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal	
Application Number:	16925878
Filing Date:	10-Jul-2020
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Filer:	Wale T. Godo
Attorney Docket Number:	304052.0001C1
Filed as Large Entity	

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	2000	2000
		Total in USD ($)		**2000**

Electronic Acknowledgement Receipt	
EFS ID:	44765910
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo
Filer Authorized By:	
Attorney Docket Number:	304052.0001C1
Receipt Date:	18-JAN-2022
Filing Date:	10-JUL-2020
Time Stamp:	13:22:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$2000
RAM confirmation Number	E20221HD23174031
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	AA20220106_3040520001C1_RCETransmittal.pdf	697601 01d881de936e2b64d5242252218e324734a5f035	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37964 be6e5d85157300d46016dd058b568a0f89a34ad2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	735565		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

89980 7590 04/05/2022

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER
SALVUCCI, MATTHEW D

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 04/05/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

TITLE OF INVENTION: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	07/05/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

89980 7590 04/05/2022

NSIP LAW
P.O. Box 65745
Washington, DC 20035

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

TITLE OF INVENTION: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	07/05/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
SALVUCCI, MATTHEW D	2613	345-441000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

89980 7590 04/05/2022

NSIP LAW
P.O. Box 65745
Washington, DC 20035

EXAMINER	
SALVUCCI, MATTHEW D	
ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 04/05/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/925,878	Applicant(s) Oh et al.	
	Examiner MATTHEW D SALVUCCI	Art Unit 2613	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the reply filed 18 January 2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-4 and 21-25 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 January 2022 has been entered.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Wale Godo on 29 March 2022.

The application has been amended as follows:

CLAIMS:

1. (Currently Amended) A method of creating digital clothing executable by a computing device storing digital clothing patterns for draping simulation, the method comprising:

setting a first selected segment to be sewn on a first segment on a pattern; and

setting a second selected segment comprising:

setting a starting point of the second selected segment on a second segment wherein the second selected segment is sewn to the first selected segment,

determining a present point on the second segment based on a current cursor position,

moving the present point to a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value, wherein the candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment,

selecting the present point as an ending point of the second selected segment, in response to a user input, and

setting as the second selected segment, a section of the second segment between the starting point and the ending point,

wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and

wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color.

Reasons for Allowance

4. Claims 1-5 and 21-25 are allowed.

5. The following is an examiner's statement of reasons for allowance:

6. Claims 1 and 22 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose or suggest a method or

apparatus, further comprising: wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color, as presented in the environment of the remaining limitations of claim 1 (and substantially similar limitations in independent claim 22). It is noted that the closest prior art, Park (US Pub. 2014/0135971), shows setting a first selected segment to be sewn on a first segment on a pattern; and setting a second selected segment comprising determining a present point on the second segment based on a current cursor position, moving the present point to a candidate ending point on the second segment, in response to the difference between the present point and the candidate ending point being less than a reference value, wherein the candidate ending point is determined to make a second length of the second selected segment substantially equal to a first length of the first selected segment, selecting the present point as an ending point of the second selected segment, in response to a user input. However, Park fails to disclose or suggest setting a starting point of the second selected segment on a second segment, wherein the second selected segment is sewn to the first selected segment, and setting as the second selected segment, a section of the second segment between the starting point and the ending point, wherein, when the second length is substantially equal to the first length, at least one of the first length, the second length and a difference value between the first length and the second length is displayed in a first color, and wherein, when the second length is substantially different from the first length, at least one of the first length, the second length and the difference value is displayed in a second color, the second color being different from the first color.

7. The remaining claims each depend from one of independent claims 1 and 22, either directly or indirectly, and are accordingly allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D SALVUCCI whose telephone number is (571)270-5748. The examiner can normally be reached M-F: 7:30-4:00PT.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, XIAO WU can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SALVUCCI/
Primary Examiner, Art Unit 2613

Examiner-Initiated Interview Summary	**Application No.** 16/925,878	**Applicant(s)** Oh et al.		
	Examiner MATTHEW D SALVUCCI	**Art Unit** 2613	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
MATTHEW D SALVUCCI	Primary Examiner	Telephonic
WALE GODO	Attorney	

Date of Interview: 29 March 2022

Issues Discussed:

Proposed Amendment(s)

Examiner proposed amending claim 1 to add a colon after the second instance of 'comprising'. An agreement was reached and the Examiner's amendment can be seen in the instant Allowability Notice.

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

CPC - Searched*		
Symbol	**Date**	**Examiner**
G05B2219/2626 + text	07/22/2020	MS
G05B2219/45195 + text	07/22/2020	MS

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST search file attached	07/22/2020	MS
Google scholar search conducted	07/22/2020	MS
Inventor search	07/22/2020	MS
Interference search	07/22/2020	MS
Updated search results in EAST	12/04/2020	MS
Updated search results in EAST	04/30/2021	MS
Updated search results in EAST	09/29/2021	MS
Updated search results in PE2E	03/29/2022	MS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G05B	2219/2626 + text	07/22/2020	MS
G05B	2219/45195 + text	07/22/2020	MS

/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	**Art Unit**
	MATTHEW D SALVUCCI	2613

CPC								
Symbol							**Type**	**Version**
G06T	/	11	/	20			F	2013-01-01
A41H	/	3	/	007			I	2013-01-01
G06T	/	11	/	203			I	2013-01-01
G06T	/	2210	/	16			A	2013-01-01
G05B	/	2219	/	45195			A	2013-01-01
G05B	/	2219	/	2626			A	2013-01-01

CPC Combination Sets								
Symbol							**Type**	**Set**	**Ranking**	**Version**
	/		/							

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	9	
/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	29 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

U.S. Patent and Trademark Office — Part of Paper No.: 20220329

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	Art Unit
	MATTHEW D SALVUCCI	2613

INTERNATIONAL CLASSIFICATION					
CLAIMED					
G06T11/20	/	11	/	20	

NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	9	
/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	29 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

U.S. Patent and Trademark Office — Part of Paper No.: 20220329

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/925,878	Oh et al.
	Examiner	**Art Unit**
	MATTHEW D SALVUCCI	2613

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		10		19										
2	2		11		20										
3	3		12	5	21										
4	4		13	6	22										
	5		14	7	23										
	6		15	8	24										
	7		16	9	25										
	8		17		26										
	9		18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	9	
/MATTHEW SALVUCCI/ Primary Examiner, Art Unit 2613	29 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

U.S. Patent and Trademark Office Part of Paper No.: 20220329

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L65	13452	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) (computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 08:54 AM
L66	36	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L67	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L68	21	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"					
L69	1	("20160314604").PN.	(US-PGPUB; USPAT)	OR	ON	ON	2021/09/29 10:47 AM
L70	521	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L71	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L72	30	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L73	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L74	2	(("20130057544") or ("20160078650")).PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:47 AM
L75	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	OFF	2021/09/29 10:47 AM

		fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	IBM_TDB)				
L76	106	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L77	61	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L78	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L79	84	(stitch$3 sew$3) NEAR4 (pattern$1	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	OFF	2021/09/29 10:47 AM

		segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	JPO; DERWENT; IBM_TDB)				
L80	84	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L81	68	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L82	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L83	235	(stitch$3 sew$3)	(US-PGPUB; USPAT;	OR	OFF	OFF	2021/09/29

		NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)				10:47 AM
L84	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L85	45	L84 NOT L82	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L86	255	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L87	77	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L88	139	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"					
L89	200	L86 NOT (L88 L87)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L90	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L91	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L92	123	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		@AD<"20150427"					
L93	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L94	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L95	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L96	8	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		(error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"					
L97	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L98	59	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L99	1	("20180025539").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:47 AM
L100	138	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L101	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"					
L102	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L103	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L104	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L105	1	("20180025539").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:47 AM
L106	8469	(Seung Woo).IN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	OFF	OFF	2021/09/29 10:47 AM
L107	40	(Seung Woo NEAR3 OH).IN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	OFF	OFF	2021/09/29 10:47 AM
L108	4	display NEAR4 (patterns segments OR clothing clothes OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	OFF	2021/09/29 10:47 AM

		fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	IBM_TDB)				
L109	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L110	181	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L111	146	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L112	78	display NEAR4 (patterns segments OR clothing clothes OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	OFF	2021/09/29 10:47 AM

		fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	IBM_TDB)				
L113	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L114	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L115	16	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L116	39	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM

		seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"					
L117	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L118	59	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:47 AM
L119	31	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L120	29	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM

		textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND @AD<"20160721"					
L121	1	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L122	2	(computer-aided NEAR (drafting drawing) CAD) AND (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L123	43	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L124	881	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L125	4	(virtual$2 OR digital$2 CAD) NEAR2 (clothing	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	OFF	2021/09/29 10:48 AM

		clothes OR fabric$1 OR textile$1 OR garment$1) AND (computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	JPO; DERWENT; IBM_TDB)				
L126	75	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L127	110	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L128	29	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L129	16	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2021/09/29 10:48 AM
L130	14202	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) (computer-aided NEAR (drafting	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"					
L131	38	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L132	23	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150827"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L133	23	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR4 sew$3 AND (length$1 size$1) NEAR3 (compar$ difference$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150527"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L134	1	("20160314604").PN.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/29 07:22 PM
L135	472	(stitch$3 sew$3)	(US-PGPUB; USPAT;	OR	OFF	OFF	2022/03/29

		NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)				07:22 PM
L136	7	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L137	26	(stitch$3 sew$3) NEAR4 (segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L138	50	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L139	2	(("20130057544") or ("20160078650")).PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/29 07:22 PM
L140	82	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

L141	93	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L142	50	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L143	126	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L144	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		@AD<"20150427"					
L145	74	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L146	59	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L147	60	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND (start$3 begin$1 OR beginning) NEAR5 (stitch$3 sew$3) AND (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L148	210	(stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

L149	73	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L150	44	L84 NOT L82	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L151	234	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L152	73	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR4 (sewing OR stitching) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L153	126	(stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2) NEAR4 (sewing OR stitching clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3 begin$1 OR beginning) NEAR5 (point OR select$3 cursor click$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L154	179	L86 NOT (L88 L87)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	OFF	2022/03/29 07:22 PM

			IBM_TDB)				
L155	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L156	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) NEAR together AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L157	112	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L158	7	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		clothes OR fabric$1 OR textile$1 OR garment$1) AND difference$1 NEAR2 length$1 AND @AD<"20150427"					
L159	0	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L160	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L161	3	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR5 (siz$3 length$1 OR longer OR difference$1 OR match$3) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L162	2	display AND (stitch$3 sew$3) NEAR4 (patterns segments OR	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	OFF	2022/03/29 07:22 PM

		clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 OR warning$1) NEAR2 (messag$3) AND @AD<"20150427"	IBM_TDB)				
L163	58	(G05B2219/2626 G05B2219/45195).CPC. AND display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L164	1	("20180025539").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/29 07:22 PM
L165	120	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L166	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR4 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L167	13	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		(layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"					
L168	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR2 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L169	2	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20150427"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L170	1	("20180025539").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/29 07:22 PM
L171	8639	(Seung Woo).IN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	OFF	OFF	2022/03/29 07:22 PM
L172	40	(Seung Woo NEAR3 OH).IN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	OFF	OFF	2022/03/29 07:22 PM
L173	4	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		@AD<"20160721"					
L174	32	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L175	161	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L176	120	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L177	71	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		OR garment$1) AND @AD<"20160721"					
L178	0	display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L179	8	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 layer$3) NEAR4 (atop) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L180	16	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L181	24	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (layer$3 order$3 top bottom first second lower upper) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		@AD<"20160721"					
L182	10	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND seam$1 NEAR4 (over$6) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L183	51	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L184	30	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L185	36	display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

L186	1	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L187	2	(computer-aided NEAR (drafting drawing) CAD) AND (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L188	41	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME (color$1 colour) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L189	1456	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L190	4	(virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

		shorter) AND (error$1 warn$4) SAME line$1 AND @AD<"20160721"					
L191	102	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L192	131	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR5 (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L193	27	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than exceed$4 longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM
L194	14	(computer-aided NEAR (drafting drawing) CAD) AND (error$1 warn$4) NEAR2 (message$1 display$3) SAME (length less ADJ than greater ADJ than longer shorter match$3) NEAR4 line$1 AND @AD<"20160721"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/03/29 07:22 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N130	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (stitch$3 sew$3) NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (virtual$2 OR digital$2	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:48 AM

		CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.					
N131	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (layer$3) NEAR2 (order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:48 AM
N132	3	(G05B2219/2626 G05B2219/45195).CPC. AND ((stitch$3 sew$3) NEAR4 (pattern$1 segment$1 OR fabric$1) AND (virtual$2 OR digital$2) NEAR4 (clothing cloth$2 OR fabric$1 OR textile$1 OR garment$1) AND (start$3) NEAR5 (point OR select$3 cursor click$3)).CLM.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:48 AM
N133	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display AND (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND sew$3 NEAR4 (layer$3 order$3) AND (virtual$2 OR digital$2 CAD) NEAR2 (SEW$3 clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:48 AM
N134	0	(G05B2219/2626 G05B2219/45195).CPC. AND (display NEAR4 (patterns segments OR clothing clothes OR fabric$1 OR textile$1 OR garment$1) AND (seam$1 stitch$3 sew$3 fabric$1 OR textile$1 OR garment$1) NEAR4	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/09/29 10:48 AM

		(front behind bottom top) AND (virtual$2 OR digital$2 CAD) NEAR2 (clothing clothes OR fabric$1 OR textile$1 OR garment$1)).CLM.					

Bibliographic Data

Application No: 16/925,878

Foreign Priority claimed: ◉ Yes ○ No

35 USC 119 (a-d) conditions met: ☑ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /MATTHEW SALVUCCI/ Examiner's Signature | Initials

Title: METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/10/2020	345	2613	304052.0001C1
RULE			

APPLICANTS

CLO VIRTUAL FASHION INC., Seoul, KOREA, REPUBLIC OF

INVENTORS

Seung Woo Oh, Seoul, KOREA, REPUBLIC OF

Kyoung Ae Bang, Seoul, KOREA, REPUBLIC OF

CONTINUING DATA

This application is a CON of 14921269 10/23/2015 PAT 10733773

FOREIGN APPLICATIONS

KOREA, REPUBLIC OF KR10-2015-0059086 04/27/2015

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/21/2020

STATE OR COUNTRY

KOREA, REPUBLIC OF

ADDRESS

NSIP LAW
P.O. Box 65745
Washington, DC 20035
UNITED STATES

FILING FEE RECEIVED

$1,720

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

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By fax, send to: (571) 273-2885

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(Typed or printed name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
16/925,878	07/10/2020	Seung Woo Oh	304052.0001C1	1069

TITLE OF INVENTION:

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	Undiscounted	$1200	$0	$0	$1200	07/05/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363)

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. NSIP Law
2.
3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: CLO VIRTUAL FASHION INC.

(B) RESIDENCE: (CITY and STATE or COUNTRY): Seoul, Republic of Korea

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. Fees Submitted: ☑ Issue Fee ☑ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment (*Please first reapply any previously paid fee shown above*):

☑ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-5113

5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29. NOTE: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27. NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Wale Godo Jr./ Date July 5, 2022

Typed or printed name Wale Godo Jr. Registration No. 75,219

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	16925878
Filing Date:	10-Jul-2020
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Filer:	Wale T. Godo/Eugene Icban
Attorney Docket Number:	304052.0001C1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1200**

Electronic Acknowledgement Receipt	
EFS ID:	46111480
Application Number:	16925878
International Application Number:	
Confirmation Number:	1069
Title of Invention:	METHOD AND APPARATUS FOR CREATING DIGITAL CLOTHING
First Named Inventor/Applicant Name:	Seung Woo Oh
Customer Number:	89980
Filer:	Wale T. Godo/Eugene Icban
Filer Authorized By:	Wale T. Godo
Attorney Docket Number:	304052.0001C1
Receipt Date:	05-JUL-2022
Filing Date:	10-JUL-2020
Time Stamp:	13:21:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E202275D23074665
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	NOA20220405_3040520001C1_IFTransmittalForm.pdf	1271817 d4cf8a1715dc90b03b306b01345c9c2978959fcb	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38031 242117e1fecd570acab9ec63f835c28c1d608d35	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1309848		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/925,878	08/09/2022	11410355	304052.0001C1	1069

89980 7590 07/20/2022

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ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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IR103 (Rev. 10/09)