GLOVE FOR GRIPPING SMALL OBJECT

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ABSTRACT
A glove for gripping a small object is disclosed. A glove for gripping a small object comprises: a glove main body comprising a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion. Each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer. A front side of the first layer and a front side of the second layer are adhered to each other and form an edge line. A rear side of the thimble portion is open to be mounted on the finger portion. A right-and-left center line of an outer surface of the first layer of the thumb thimble portion and a right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when a user wears the glove and aligns a front end portion of the thumb thimble portion with a front end portion of the forefinger thimble portion.
FIG. 2
FIG. 4
GLOVE FOR GRIPPING SMALL OBJECT
CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is a continuation of International Application No. PCT/KR2011/009460 filed Dec. 8, 2011, which claims priority to Korean Application No. 10-2010-0135219 filed Dec. 27, 2010, which applications are incorporated herein by reference.

TECHNICAL FIELD

The present invention relates to a glove for gripping a small object, and more particularly, to a glove for gripping a small object having a structure of a thimble portion and a forefinger portion being able to easily grip the small object.

BACKGROUND ART

A conventional glove is used for protecting a hand or for maintaining temperature of the hand regardless of the outside temperature. Recently, a function of a glove is being expanded from the protection of the hand. Thus, various gloves such as a cut resistant glove, a non-slippering glove, a heat resistant glove, a winter glove, an acid-resistant glove, a flame resistant glove, a vibration isolation glove, a glove for treating oil and solid waste, and so on.

The glove is formed of cloth with a predetermined thickness in order to protect a hand. However, when a user works while wearing the glove, it is difficult for the user to grip small instruments, such as a needle, a pin, a nail, a screw, and so on. Therefore, the user should take off the glove and grip the small objects with bare hands, and thus, it is inconvenient. Further, if the grip of the small object is difficult with even bare hands due to the size of the small object, an additional instrument should be prepared.

Also, an end of the conventional glove is not sharp and the conventional glove is formed of an insulating material. Thus, signal cannot be provided to a touch panel of a resistance type and a capacitance type when the user wears the glove. Accordingly, the user cannot use the touch panel while wearing the glove.

On the other hand, according to a study of the inventor, there are four reasons why the grip of the small object is difficult with the glove.

First, conventionally, the small objects are gripped by finger tips of a thumb and a forefinger. By a thickness of a glove material constituting the glove, a point of the glove where the thumb and the forefinger are in contact become stubby and a dead space of the gripping is formed.

Secondly, when the finger is inserted to a space of a glove finger portion, an extra space is formed between the glove and the hand because the glove is larger than the finger. When the end portion of the glove is in contact with the object, the extra space is folded and creases are generated, and thus, the grip of the small object is disturbed.

Thirdly, the human hand has nails. Thus, when gripping the small object of a limited size (that is, a semiconductor chip, a larva, an insect egg, and so on), the nail of the thumb and the nail of the forefinger are symmetrically positioned with respect to the small object, the grip position and the balance of the object are secured, and a proper grip force is provided to the object. However, the glove does not have the nails.

Fourthly, in order to grip the small object that the maintenance of the gripped contact point is impossible (such as, the object has a sphere shape or a round bar), the small object is raised through gripping central lower portions of the object are gripped by the nails, and then, the small object is settled between the nails and finger print portions. However, in the state that the glove is worn, the pulling the small object upward or the settlement between the nail and the fingerprint portion are impossible.

SUMMARY OF THE DISCLOSURE

The present invention has been made in view of the above problems, and the present invention provides a glove being able to easily grip small objects than bare hands of human.

Also, the present invention provides a glove being able to transfer signal to a touch panel of a resistance type and a capacitance type.

A glove for gripping a small object, according to an aspect to the present invention, comprises: a glove main body comprising a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion.

Each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer. A front side of the first layer and a front side of the second layer are adhered to each other and form an edge line. A rear side of the thimble portion is open to be mounted on the finger portion. A right-and-left center line of an outer surface of the first layer of the thumb thimble portion and a right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when a user wear the glove and aligns a front end portion of the thumb thimble portion with a front end portion of the forefinger thimble portion.

In this instance, an angle between the right-and-left center line of the thumb thimble portion and the right-and-left center line of the forefinger thimble portion may be in a range from about 170° to about 190° in a front view where the first layers are shown. The thumb thimble portion and the forefinger thimble portion may preferably have a common tangent plane at the contact point between the both of the right-and-left center lines of the thumb thimble portion and the forefinger thimble portion.

Also, thimble portion may have preferably a symmetrical structure with respect to the right-and-left center line.

Further, a thickness of the second layer may be preferably smaller than a thickness of the first layer.

In addition, the edge line may preferably have a thickness of about 0.001 mm to about 0.5 mm.

A glove for gripping a small object, according to another aspect to the present invention, comprises a glove main body comprising a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion. Each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer. A front side of the first layer and a front side of the second layer are adhered to each other and...
form an edge line. A rear side of the thimble portion is open to be mounted on the finger portion. The glove has a stylus pen function.

[0020] In this instance, at least a part of a portion where the second layer of the forefinger thimble portion is mounted may have a hole, and the finger of a user may be in direct contact with the forefinger thimble portion, and the forefinger thimble portion may comprise conductive resin, and a current of the finger of the user is transferred through the forefinger thimble portion.

[0021] Also, the glove may further comprise a stylus pen mounted in the thimble portion, and the stylus pen may comprise a battery and a tip where the current is transferred from the battery.

[0022] Also, the glove may further comprise a stylus pen mounted on an outer surface of the thimble portion, and the stylus pen may comprise a battery and a tip where the current is transferred from the battery.

[0023] Further, a front end portion of the tip has a shape same as that of a front end portion of the thimble portion corresponding to the tip.

[0024] A glove for gripping a small object, according to yet another embodiment of the present invention, comprises: a glove main body comprising a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion. Each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer. A front side of the first layer and a front side of the second layer are adhered to each other and form an edge line. A rear side of the thimble portion is open to be mounted on the finger portion. The thimble portion is mounted on the finger portion of the glove main body by an injection molding. A right-and-left center line of an outer surface of the first layer of the thumb thimble portion and a right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when a user wears the glove and aligns a front end portion of the thimble portion with a front end portion of the forefinger thimble portion.

[0025] In this instance, an angle between the right-and-left center line of the thumb thimble portion and the right-and-left center line of the forefinger thimble portion may be in a range from about 170° to about 190° in a front view where the first layers are shown. The thumb thimble portion and the forefinger thimble portion may have a common tangent plane at the contact point between the both of the right-and-left center lines of the thumb thimble portion and the forefinger thimble portion.

[0026] According to an aspect of the present invention is a method for manufacturing a glove for gripping a small object. A glove main body comprises a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion. Each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer. A front side of the first layer and a front side of the second layer are adhered to each other and form an edge line. A rear side of the thimble portion is open to be mounted on the finger portion. The thimble portion is mounted on the finger portion of the glove main body by an injection molding. The thimble portion is formed by mounting the glove main body on a mold comprising cores and injecting an injection-molded member to a mold portion formed by the cores and the finger portion of the glove main body. The cores comprises an upper core for forming an outer surface of the first layer of the thimble portion, a lower core for forming an outer surface of the second layer of the thimble portion, and a slide core where the finger portion of the glove main body is mounted.

[0027] According to the present invention, first, when a user wears a glove for gripping a small object, the user can grip a smaller object than bare hands.

[0028] Secondly, the user provides a signal to a touch panel with a glove, and thus, the user can use a display device without any inconvenient action, such as, taking off the glove.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] FIG. 1 is a perspective view of a glove for gripping a small object according to a first embodiment of the present invention.

[0030] FIG. 2 is a cross-sectional view taken along line I-I’ of FIG. 1.

[0031] FIG. 3 is a front view illustrating first layers in a state that a user wears the glove and aligns a front end portion of a thumb with a front end portion of a forefinger.

[0032] FIG. 4 is a side view of a state that the user wears the glove and aligns the front end portion of the thumb with the front end portion of the forefinger.

[0033] FIG. 5 is a structural view of a glove for gripping a small object according to a second embodiment of the present invention.

[0034] FIG. 6 is a structural view of a glove for gripping a small object according to a third embodiment of the present invention.

[0035] FIG. 7 is a structural view of a glove for gripping a small object according to a fourth embodiment of the present invention.

[0036] FIG. 8 is a structural view of a glove for gripping a small object according to a fifth embodiment of the present invention.

[0037] FIG. 9 is a cross-sectional view of a mold for manufacturing a glove for gripping a small object according to the present invention.

[0038] FIG. 10 is an explanation drawing for illustrating a state for manufacturing a glove for gripping a small object according to the present invention.

DETILED DESCRIPTION OF THE DISCLOSURE

[0039] Hereinafter, with reference to accompanying drawings, examples of the present invention will be described in detail. For convenience, like reference numerals refer to like elements throughout. FIG. 1 is a perspective view of a glove for gripping a small object according to a first embodiment of the present invention, and FIG. 2 is a cross-sectional view taken along line I-I’ of FIG. 1.

[0040] With reference to FIG. 1 and FIG. 2, a glove for gripping a small object according to the present embodiment includes a glove main body 20 including a finger portion for covering a finger, and a thimble portion 10.

[0041] The thimble portion 10 is formed at an end portion of the finger portion of the glove. The thimble portion 10 includes a first layer 101 facing the back of a hand and a second layer 102 being opposite to the first layer 101. Front sides of the first layer 101 and the second layer 102 are
adhered to each other and form a structure where the finger is inserted. In this instance, the thimble portion 10 may be inserted to the finger portion, may be adhered to the finger portion, or may be formed by an injection molding.

[0042] In this instance, in a vertical cross section taken along a longitudinal direction of the finger, the first layer 101 may be formed of a curved surface having a convex shape from an inner side of the thimble portion toward an outside of the thimble portion. A curvature of the curved surface of the first layer 101 is varied. The second layer 102 may be formed of a curved surface. The front side of the second layer 102 is convex from the outside of the thimble portion to the inner side of the thimble portion, the rear side of the second layer 102 is convex from the inner side of the thimble portion to the outside of the thimble portion, and a curvature of the second layer 102 is gradually varied between the front side of the second layer 102 and the rear side of the second layer 102. Thus, there may be an inflection portion between the front side of the second layer 102 and the rear side of the second layer 102. However, the present invention is not limited to the shapes of the first and second layers 101 and 102. The line where the front sides of the first layer 101 and the second layer 102 meet forms an edge line 103.

[0043] The thimble portions 10 corresponding to different fingers have the same shapes and structures; however, the size of the thimble portions 10 corresponding to different fingers may be different. The thimble portion 10 may have bilateral symmetry. The thimble portion 10 of the bilateral symmetry can be easily manufactured.

[0044] As shown in FIG. 2, an angle (A) between a tangent line of the first layer 101 and a tangent line of the first layer 102 at a contact point of the first layer 101 and the second layer 102 may preferably be in a range from about 18° to about 68°. In this instance, the angle may have a relatively large value in the above range so that an object being large and heavy than an object being small and light can be easily gripped.

[0045] A material of the thimble portion 10 is an important factor of a gripping ratio. The first layer 101 may preferably have Shore A hardness of about 20 to about 70. In this instance, the large hardness is advantageous to easily grip an object being large and heavy. Beyond the above range, the gripping ratio is below standard of industrial utilization.

[0046] Specifically, the material of the thimble portion 10 may be selected from various materials, such as, rubber, synthetic resin, fiber, metal, non-metal, and so on. The thimble portion may be preferably formed of the material that an original form is rapidly recovered.

[0047] For example, the material of the thimble portion 10 may be manufactured to have the above hardness range, by using one rubber selected from the group consisting of nitrile rubber, natural rubber, acrylic rubber, urethane rubber, fluoro rubber, silicon rubber, and synthetic rubber thereof. However, the present invention is not limited thereto.

[0048] Beside the material, a thickness of the thimble portion 10 is also an important factor. The first layer 101 may preferably have the thickness of about 0.03 mm to about 3 mm. When the thickness of the first layer 101 is above about 3 mm, repetitive movements for gripping the object (that is, bending and spreading out the fingers) may be disturbed by the thickness of the first layer 101. When the thickness of the first layer 101 is below about 0.03 mm, a manufacture of the structure of the first layer 101 may be difficult because of the small thickness.

[0049] Also, the second layer 102 may preferably have the thickness of about 0.03 mm to about 3 mm. When the thickness of the second layer 102 is above about 3 mm, repetitive movements for gripping the object (that is, bending and spreading out the fingers) may be disturbed by the thickness of the second layer 102. When the thickness of the second layer 102 is below about 0.03 mm, a manufacture of the structure of the second layer 102 may be difficult because of the small thickness. In this instance, the second layer 102 may be thinner than the first layer 101 in order to provide a feeling like the human hand during wearing the glove.

[0050] On the other hand, the thimble portion 10 has a streamlined shape on the whole. That is, a height of the thimble portion 10 decreases as it goes toward the edge line of the front end portion, and the thickness of the edge line that is the front end is in a range from about 0.001 mm to about 0.5 mm. Hereby, the edge line of the thimble portion 10 is thinner than the nail of the human hand (for example, the thickness of the nail of the human hand is about 0.65 mm), and thus, the small object can be easily gripped through the glove more than the human hand.

[0051] A length of the thimble portion 10 may preferably be the same as a length from a fingertip to a knuckle adjacent to the fingertip of the finger, or be preferably slightly larger than a length from a fingertip to a knuckle adjacent to the fingertip of the finger.

[0052] FIG. 3 is a front view illustrating first layers in a state that a user wears the glove and aligns a front end portion of a thumb with a front end portion of a forefinger. FIG. 4 is a side view of a state that the user wears the glove and aligns the front end portion of the thumb with the front end portion of the forefinger.

[0053] During the gripping the object, a right-and-left center line of the nail of the thumb and a right-and-left center line of the nail of the forefinger are not arranged in a straight line in a front view. That is, an angle of the right-and-left center line of the nail of the thumb and the right-and-left center line of the nail of the forefinger is about 140°. The right-and-left center line of the nail of the thumb and the right-and-left center line of the nail of the forefinger at the gripping point are not consistent with or aligned with each other and have a gap of about 2.2 mm to about 2.9 mm. Also, a surface of the nail of the thumb and a surface of the nail of the forefinger are not aligned with each other. Accordingly, it is difficult to grip a smaller object by the human hand. Here, the right-and-left center line means a line connecting centers of the right-and-left direction.

[0054] In order to easily grip the smaller object more than the human hand, in the glove for gripping the small object according to the embodiments, a distance between the right-and-left center line of an outer surface of the first layer of the thumb thimble portion and the right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when the user wear the glove and align the front end portion of the thumb thimble portion and the front end portion of the forefinger thimble portion. Also, an angle between both the right-and-left center lines may be in a range from about 170° to about 190° in a front view where the first layers are shown. The thumb thimble portion and the forefinger thimble portion may have a common a tangent plane at the contact point of the both the right-and-left center lines.
To achieve this, the thumb thimble portion 10-1 is positioned at a position rotated to the right with respect to the nail of the thumb that the first layer 101 of the thumb thimble portion corresponds to. Also, the forefinger thimble portion 10-2 is positioned at a position rotated to the left with respect to the nail of the forefinger that the first layer 101 of the thumb thimble portion 10-2 corresponds to.

On the other hand, hereinafter, gloves according to embodiments being able to be used as stylus pens on a touch screen of a capacitance type will be described. Same reference numerals refer to elements same as or similar to the elements of the above embodiment for convenience.

FIG. 5 is a structural view of a glove for gripping a small object according to a second embodiment of the present invention.

In the embodiment, at least a part of a portion where a second layer 102 of a forefinger thimble portion 10-2 is mounted has a hole 201, and a finger of a user is in direct contact with the forefinger thimble portion 10. In this instance, the forefinger thimble portion includes a conductive resin, and thus, a current of the finger of the user is transferred to the touch screen through the forefinger thimble portion, thereby generating the capacitance change of the touch screen.

In this instance, widely known moldable conductive resin may be used the conductive resin. A material that a conductive metal and resin are mixed is generally used. For example, iron, copper, nickel, and so on may be used for the metal, and PPE, PC, and so on may be used for the resin.

FIG. 6 is a structural view of a glove for gripping a small object according to a third embodiment of the present invention.

In the embodiment, a stylus pen is mounted on the first layer 102. That is, the stylus pen is mounted in the first layer 102. The stylus pen may be integrated with the thimble portion during an injection molding, or may be detachable to the thimble portion.

The stylus pen includes a battery 302, and a conductive tip 301 for transferring the current of the battery. Also, a connection element for connecting the battery 302 and the conductive tip 301 may be further included.

The battery 302 is a small size battery having a size being able to be included in the first layer. The conductive tip 301 has a stick shape extending in the finger direction. Also, the front end portion of the conductive tip 301 may be preferably consistent with or aligned with the front end portion of the thimble portion.

FIG. 7 is a structural view of a glove for gripping a small object according to a fourth embodiment of the present invention. The fourth embodiment is different from the third embodiment in that a stylus pen is mounted on an outer surface of the thimble portion, not in the first layer 101. Methods or types for mounting the stylus pen on the outer surface of the thimble portion may be various. For example, a conductive tip 401, a battery 402, and a mounting member 403 may be included.

The mounting member 403 may be preferably fixed to or mounted on the thimble portion 10 through elastic deformation. The conductive tip may preferably have a long stick shape, and an end portion of the conductive tip 401 may be preferably consistent with or aligned with the end portion of the thimble portion 10. The battery 402 provides current to the conductive tip 401.
a rear side of the thimble portion is open to be mounted on the finger portion, and
a right-and-left center line of an outer surface of the first layer of the thumb thimble portion and a right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when a user wears the glove and aligns a front end portion of the thumb thimble portion with a front end portion of the forefinger thimble portion.

2. The glove according to claim 1, wherein an angle between the right-and-left center line of the thumb thimble portion and the right-and-left center line of the forefinger thimble portion is in a range from about 170° to about 190° in a front view where the first layers are shown, and the thumb thimble portion and the forefinger thimble portion have a common tangent plane at the contact point between the both of the right-and-left center lines of the thumb thimble portion and the forefinger thimble portion.

3. The glove according to claim 2, wherein thimble portion has a symmetrical structure with respect to the right-and-left center line.

4. The glove according to claim 2, wherein a thickness of the second layer is smaller than a thickness of the first layer.

5. The glove according to claim 4, wherein the edge line has a thickness of about 0.001 mm to about 0.5 mm.

6. A glove for gripping a small object, comprising:
a glove main body comprising a finger portion for covering a finger; and
a thimble portion comprising a thumb thimble portion and a forefinger thimble portion, wherein each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer, a front side of the first layer and a front side of the second layer are adhered to each other and form an edge line, a rear side of the thimble portion is open to be mounted on the finger portion, and
the glove has a stylus pen function.

7. The glove according to claim 6, wherein at least a part of a portion where the second layer of the forefinger thimble portion is mounted has a hole, and the finger of a user is in direct contact with the forefinger thimble portion, and
the forefinger thimble portion comprises conductive resin, and a current of the finger of the user is transferred through the forefinger thimble portion.

8. The glove according to claim 6, further comprising a stylus pen mounted in the thimble portion, wherein the stylus pen comprises a battery and a tip where the current is transferred from the battery.

9. The glove according to claim 6, further comprising a stylus pen mounted on an outer surface of the thimble portion, wherein the stylus pen comprises a battery and a tip where the current is transferred from the battery.

10. The glove according to claim 8, wherein a front end portion of the tip has a shape same as that of a front end portion of the thimble portion corresponding to the tip.

11. The glove according to claim 9, wherein a front end portion of the tip has a shape same as that of a front end portion of the thimble portion corresponding to the tip.

12. A glove for gripping a small object, comprising:
a glove main body comprising a finger portion for covering a finger; and
a thimble portion comprising a thumb thimble portion and a forefinger thimble portion, wherein each of the thumb thimble portion and the forefinger thimble portion comprises a first layer facing the back of a hand and a second layer being opposite to the first layer, a front side of the first layer and a front side of the second layer are adhered to each other and form an edge line, a rear side of the thimble portion is open to be mounted on the finger portion, the thimble portion is mounted on the finger portion of the glove main body by an injection molding, and a right-and-left center line of an outer surface of the first layer of the thumb thimble portion and a right-and-left center line of an outer surface of the first layer of the forefinger thimble portion are aligned with each other within an error margin of about 0 mm to about 0.5 mm, when a user wears the glove and aligns a front end portion of the thumb thimble portion with a front end portion of the forefinger thimble portion.

13. The glove according to claim 12, wherein an angle between the right-and-left center line of the thumb thimble portion and the right-and-left center line of the forefinger thimble portion is in a range from about 170° to about 190° in a front view where the first layers are shown, and the thumb thimble portion and the forefinger thimble portion have a common tangent plane at the contact point between the both of the right-and-left center lines of the thumb thimble portion and the forefinger thimble portion.

14. A method for manufacturing a glove for gripping a small object, wherein a glove main body comprising a finger portion for covering a finger; and a thimble portion comprising a thumb thimble portion and a forefinger thimble portion, wherein each of the thumb thimble portion and the forefinger thimble portion comprising a first layer facing the back of a hand and a second layer being opposite to the first layer, wherein a front side of the first layer and a front side of the second layer being adhered to each other and forming an edge line, and wherein a rear side of the thimble portion being open to be mounted on the finger portion, wherein the thimble portion being mounted on the finger portion of the glove main body by an injection molding,

wherein the thimble portion is formed by mounting the glove main body on a mold comprising cores and injecting an injection-molded member to a mold portion formed by the cores and the finger portion of the glove main body, and
the cores comprises an upper core for forming an outer surface of the first layer of the thimble portion, a lower core for forming an outer surface of the second layer of the thimble portion, and a slide core where the finger portion of the glove main body is mounted.

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