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(54) Title: SPORTS GLOVE WITH INVERTED FINGER PADS

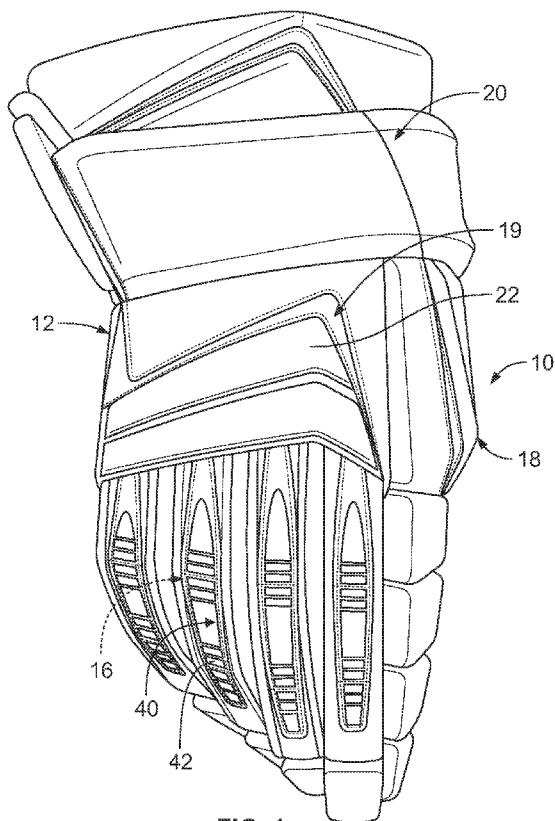


FIG. 1

(57) Abstract: A sports glove, such as a hockey or lacrosse glove, includes inverted finger pads connected such that exterior gaps are not present between some or all of the adjacent pads when a wearer grips a stick or otherwise closes his or her hand. The inverted pads optionally include stiffening elements attached to or integral with their outer surfaces to provide additional protection to the wearer's fingers. The finger pads covering the base regions of the fingers optionally are attached to the main body of the glove via an elastic material or similar material that allows the finger pads to move away from the main body during closure of a wearer's hand. These finger pads may further be attached to the main body via an inelastic strap or similar feature that prevents the finger pads from being pulled forward beyond the rear housing or cover that overlies these finger pads.

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SPORTS GLOVE WITH INVERTED FINGER PADS

BACKGROUND

[0001] Sports gloves used in contact sports, such as hockey and lacrosse gloves, commonly include thick padding that covers the rear of the hand and fingers of a wearer to protect the hand and fingers from stick-slashing and other violent contact. Multiple blocks of this padding material, which may be made of foam or another suitable impact-absorbing material, are typically encased in nylon or another fabric material that is stitched together at the base regions of the padding blocks. When a wearer closes his or her fingers around a stick or other piece of equipment, or otherwise makes a fist, the padding blocks separate from one another, providing gaps between the pads that expose the wearer's fingers to potential contact from a stick or other piece of equipment. Thus, players may be at risk of finger injuries even when wearing a padded sports glove.

SUMMARY

[0002] A sports glove, such as a hockey or lacrosse glove, includes inverted finger pads connected such that exterior gaps are not present between some or all of the adjacent pads when a wearer grips a stick or otherwise closes his or her hand. The inverted pads optionally include stiffening elements attached to or integral with their outer surfaces to provide additional protection to the wearer's fingers. The finger pads covering the base regions of the fingers optionally are attached to the

main body of the glove via an elastic material or similar material that allows the finger pads to move away from the main body during closure of a wearer's hand. These finger pads may further be attached to the main body via an inelastic strap or similar feature that prevents the finger pads from being pulled forward beyond the rear housing or cover that overlies these finger pads. Other features and advantages will appear hereinafter. The features described above can be used separately or together, or in various combinations of one or more of them.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] In the drawings, wherein the same reference number indicates the same element throughout the views:

[0004] Fig. 1 is a perspective view of a sports glove, according to one embodiment.

[0005] Fig. 2 is a side-sectional view of one of the fingers of the sports glove shown in Fig. 1 in the straight position.

[0006] Fig. 3 is a side-sectional view of the finger shown in Fig. 2 in the closed position.

DETAILED DESCRIPTION OF THE DRAWINGS

[0007] Various embodiments of the invention will now be described. The following description provides specific details for a thorough understanding and enabling description of these embodiments. One skilled in the art will understand, however, that the invention may be practiced without many of these details. Additionally, some well-known structures or functions may not be shown or described in detail so as to avoid unnecessarily obscuring the relevant description of the various embodiments.

[0008] The terminology used in the description presented below is intended to be interpreted in its broadest reasonable manner, even though it is being used in conjunction with a detailed description of certain specific embodiments of the invention. Certain terms may even be emphasized below; however, any terminology intended to be interpreted in any restricted manner will be overtly and specifically defined as such in this detailed description section.

[0009] Where the context permits, singular or plural terms may also include the plural or singular term, respectively. Moreover, unless the word "or" is expressly limited to mean only a single item exclusive from the other items in a list of two or more items, then the use of "or" in such a list is to be interpreted as including (a) any single item in the list, (b) all of the items in the list, or (c) any combination of items in the list.

[0010] Turning now in detail to the drawings, Figs. 1-3 illustrates a sports glove 10, according to one embodiment. The sports glove 10 described herein may be used in a variety of sports, including hockey, lacrosse, and other contact sports. For ease of description, these gloves will generally be referred to as “sports gloves” or “hockey gloves.”

[0011] The sports glove 10 includes a main body 12. Multiple finger sections 16 configured to receive a wearer's fingers extend from a first end of the main body 12. A thumb section 18 configured to receive a wearer's thumb extends from a side region of the main body 12. The side regions 15 of the finger sections 16 may include durable material (e.g., leather) or a breathable material (e.g., mesh). The palm section of the glove (not shown) opposite the rear section may include a durable material, and may optionally include openings or breathable material in one or more regions to provide ventilation to a wearer's hand.

[0012] A rear cover 19 defining a finger-pad housing is connected to a rear region of the main body 12. As best shown in Figs. 2 and 3, the rear cover 19 at least partially overlies base regions of the finger sections 16. A support pad 17 optionally extends behind the finger sections 16 in the finger-pad housing to provide structural support, particularly for when the fingers sections 16 are in the closed or gripping position, as further described below.

[0013] A cuff region 20 extends from a second end of the main body 12. The cuff region 20 is optionally extendable such that the amount of wrist coverage it provides may be adjusted. The cuff region 20, for example, may be elastically attached to an interior of the main body 12 and may include hook and loop fasteners or other suitable attachment mechanisms to allow the cuff region 20 to be attached at a desired location on the inside of the main body 12.

[0014] The rear regions of the main body 12, the thumb section 18, and the rear cover 19 include pads 22 made of an open cell, urethane foam (e.g., Poron®), a PVC nitrile foam, or of another suitable impact-absorbing material. The pads 22 are preferably encased in a fabric material, such as nylon or another suitable material.

[0015] In the illustrated embodiment, each finger section 16 includes a base pad 24, a first mid-region pad or “knuckle pad” 26, a second mid-region or “knuckle pad” 28, and a tip pad 30. A greater or lesser number of pads alternatively may be included in each finger section 16. For example, the base pad 24 or the second knuckle pad 28 could have a greater length in a given finger section 16, such that the first knuckle pad 26 may be omitted. Further, different finger sections 16 in a given glove may include differing numbers of pads. For example, the index finger section could include four pads, while the pinkie finger section could include three pads. Any other suitable number and combination of pads alternatively may be used.

[0016] The multiple finger pads are also preferably encased in a fabric material, such as nylon or another suitable material. The material encasing at least some of the finger pads is stitched together or otherwise connected between the rear, upper regions of the finger pads. In the illustrated embodiment, for example, the casing material is stitched together between—or otherwise forms a bridge between—the upper regions of the base pad 24 and the first knuckle pad 26, and between the upper regions of the first and second knuckle pads 26 and 28. (The casing material between the tip pad 30 and the second knuckle pad 28 in the illustrated embodiment, conversely, is stitched together or otherwise forms a bridge between the base regions or lower regions of the pads—in an alternative embodiment, these pads may also be stitched together or otherwise bridged at their upper regions.)

[0017] As shown in Fig. 2, as a result of this configuration, when the finger sections 16 are oriented in a straight position, gaps 31 are located between the base pad 24 and the first knuckle pad 26, and between the first and second knuckle pads 26 and 28, below the connection points of these pads. These finger pads, therefore, effectively are “inverted” relative to finger pads in conventional hockey gloves, which include external gaps between the pads. Thus, unlike conventional padding arrangements, in the sports glove 10, external gaps are not provided between at least some of the pads covering the wearer’s fingers. The wearer’s fingers in these regions, therefore, are not exposed to contact from a stick or other equipment.

[0018] In one embodiment, the base pad 24 (or its casing) of each finger section 16 is connected to the main body 12 via an elastic strap 32 or similar element. As illustrated in Fig. 3, the elastic strap 32 allows the base pad 24 to move or slide in a longitudinal direction toward the tip end of the finger section 16 when a wearer closes his or her hand. Each base pad may be connected to the main body 12 via a separate elastic strap 32, or an elastic webbing may be connected to some or all of the base-pad casings.

[0019] The base pad 24 (or its casing) of each finger section 16 may also be connected to the main body 12 via an inelastic strap 34 or similar element. The inelastic strap 34 optionally has a length suitable to prevent the base pad 24 from sliding or moving completely out of the finger-pad housing, such that a rear region of the hand does not become exposed to contact from a stick or other piece of equipment when the wearer's hand is in a closed position. In an alternative embodiment, the elastic straps 32 may be omitted such that only the inelastic straps 34 are used. It is preferred to include the elastic straps 32, however, because they aid in pulling the base pads 24 fully into the finger-pad housing when the wearer straightens his or her fingers.

[0020] In one embodiment, one of the elastic and inelastic straps 32, 34 is attached to an upper region of the base-pad casing, while the other of the elastic and inelastic straps 32, 34 is attached to a lower region of the base-pad casing. Alternatively, both straps may be attached to the upper or lower region of the base-

pad casing, or one or both straps may be attached to a mid-region of the base-pad casing.

[0021] As illustrated in Fig. 3, because the gaps 31 are located beneath the connection points of neighboring pads, the gaps 31 become partially or completely closed when a wearer closes his or her hand. Thus, unlike in conventional hockey gloves—where the gaps are on the exterior of the glove and therefore expose the wearer’s hand to contact from a stick or other equipment when the wearer’s hand is closed—in the glove described herein, the wearer’s fingers are not exposed to contact when the wearer’s fingers are in the closed, or stick-gripping position (with the exception of the gap 33 formed between the tip pad 30 and the second knuckle pad 28, which is a region not commonly subjected to contact—as mentioned above, however, these pads alternatively may be stitched or otherwise connected at their upper regions such that no exterior gap would be present between them, as well).

[0022] In one embodiment, stiffening elements 40 are attached to or integral with the rear, outer surfaces of the finger sections 16 to provide additional protection to the wearer’s fingers. One or more stiffening elements may be attached to or integral with the rear, outer surface of the thumb section 18, as well. The stiffening elements 40 are preferably made of a higher density material than the encased foam pads, while still being flexible enough to bend when the wearer’s fingers are curved in the closed position. Each stiffening element 40, for example, may be made of thermoplastic polyurethane (“TPU”), polypropylene, polyethylene, a plastic, or

another suitable high-density material. Ribs 42, raised ridges, or other protective features may be included on or integral with an outer surface of the stiffening elements to provide additional protection.

[0023] The stiffening elements 40 may be radio-frequency welded directly to the finger-casing material, or may be stitched to the finger casing material, or may be molded onto the finger casing material, or may be attached to the finger casing material in any other suitable manner. Because they are located on rear regions of the finger sections 16, the stiffening elements 40 also help to inhibit rearward flexion, or hyperextension, of a wearer's fingers.

[0024] In one embodiment, the encased foam pads in the finger sections 16 may be molded or assembled into a pre-curved orientation to better follow the path of the wearer's fingers in a stick-grasping position. In this embodiment, as few as one finger pad could be included over the length of the finger section 16. Alternatively, a pre-curved pad could be used in combination with a separate tip pad (such as tip pad 30 shown in Figs. 2 and 3), or in combination with one or more additional finger pads (such as the second knuckle pad 28 shown in Figs. 2 and 3). The pre-curved pad optionally is molded or assembled with a partial break or undercut, such that the pad is better able to curve as the fingers are progressively closed.

[0025] The sports glove 10 described herein provides several advantages. For example, because the gaps 31 between the inverted finger pads close, or

substantially close, when a wearer grasps a stick or otherwise closes his or her hand, the wearer's fingers are protected better than a wearer's fingers in a conventional hockey glove that has multiple external gaps on each finger section when the wearer's hand is in the closed position. Further, because the base pads 24 of the finger sections 16 are able to move forward during closing of a wearer's hand, there is significantly less resistance to natural motion of the fingers than what is exhibited in conventional hockey gloves. An additional layer of protection may also be provided by including stiffening elements 40 on the rear, outer regions of the finger sections 16 or the thumb section 18.

[0026] Any of the above-described embodiments may be used alone or in combination with one another. Further, the sports glove may include additional features not described herein. While several embodiments have been shown and described, various changes and substitutions may of course be made, without departing from the spirit and scope of the invention. The invention, therefore, should not be limited, except by the following claims and their equivalents.

What is claimed is:

1. A sports glove, comprising:

a main body including a palm region and a rear region opposite the palm region;

a plurality of finger portions extending from the main body, with each finger portion including a plurality of finger pads in a casing material, with the finger portions and the finger pads having an inner side toward the palm region of the glove and an outer side toward the rear region of the glove;

wherein the casing material connects at least two adjacent finger pads at their outer sides in at least one of the finger portions, such that no exterior gap is present between the adjacent finger pads both when the finger section is in a straight position and when the finger section is in a curved position.

2. The sports glove of claim 1 wherein at least one of the finger pads is pre-curved.

3. The sports glove of claim 1 wherein the finger pads in at least one of the finger sections include a base pad, a knuckle pad, and a tip pad.

4. The sports glove of claim 3 wherein the casing material connects the base pad and the knuckle pad at their outer sides.

5. The sports glove of claim 4 wherein the casing material further connects the knuckle pad and the tip pad at their inner sides.

6. The sports glove of claim 1 wherein one of the finger pads in at least one of the finger sections comprises a base pad, with the base pad connected to the main body via an elastic connector such that the base pad is movable relative to the main body to facilitate closing of a wearer's fingers.

7. The sports glove of claim 6 wherein each of the finger sections includes a base pad, and wherein each of the base pads is connected to the main body via an elastic connector.

8. The sports glove of claim 6 further comprising an inelastic connector connecting the base pad to the main body to limit longitudinal movement of the base pad.

9. The sports glove of claim 8 wherein each of the finger sections includes a base pad, and wherein each of the base pads is connected to the main body via an inelastic connector.

10. The sports glove of claim 8 further comprising a cover over the base pad that defines a finger-pad housing, wherein the inelastic connector prevents the base pad from moving completely out of the finger-pad housing.

11. The sports glove of claim 1 further comprising a stiffening element on the outer side of at least one of the finger portions.

12. The sports glove of claim 11 further comprising a plurality of ribs on an outer surface of the stiffening element.

13. A sports glove, comprising:

a main body including a palm region and a rear region opposite the palm region;

a plurality of finger portions extending from the main body, with each finger portion including a plurality of finger pads, with the finger portions and the finger pads having an inner side toward the palm region of the glove and an outer side toward the rear region of the glove;

wherein at least two of the finger pads in at least one of the finger portions are connected such that no exterior gap is present between them, both when the finger section is in a straight position and when the finger section is in a curved position.

14. The sports glove of claim 13 wherein at least two of the finger pads in each of the finger portions are connected such that no exterior gap is present between them, both when the finger sections are in a straight position and when the finger sections are in a curved position.

15. The sports glove of claim 13 wherein one of the finger pads in at least one of the finger sections comprises a base pad, with the base pad connected to the main body via an elastic connector such that the base pad is movable relative to the main body to facilitate closing of a wearer's fingers.

16. The sports glove of claim 15 further comprising an inelastic connector connecting the base pad to the main body to limit longitudinal movement of the base pad.

17. A sports glove, comprising:
a main body including a palm region and a rear region opposite the palm region;
a plurality of finger portions extending from the main body, with each finger portion including a plurality of finger pads, wherein one of the pads in at least one of the finger portions comprises a base pad connected to the main body via an elastic connector such that the base pad is movable relative to the main body to facilitate closing of a wearer's fingers.

18. The sports glove of claim 17 wherein at least two of the finger pads in each of the finger sections are connected such that no exterior gap is present between them, both when the finger sections are in a straight position and when the finger sections are in a curved position.

19. The sports glove of claim 17 further comprising an inelastic connector connecting the base pad to the main body to limit longitudinal movement of the base pad.

20. The sports glove of claim 19 further comprising a cover over the base pad that defines a finger-pad housing, wherein the inelastic connector prevents the base pad from moving completely out of the finger-pad housing.

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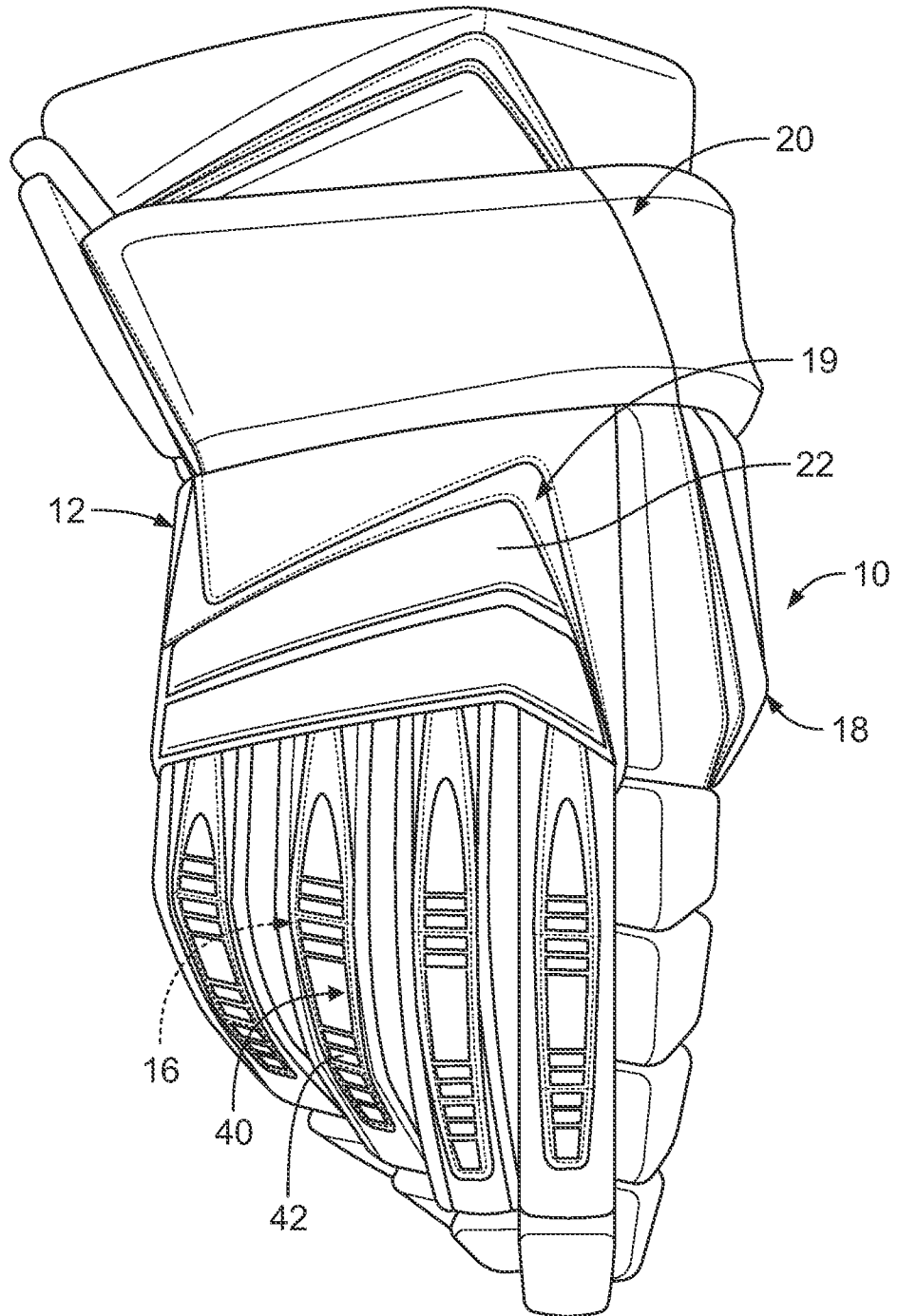
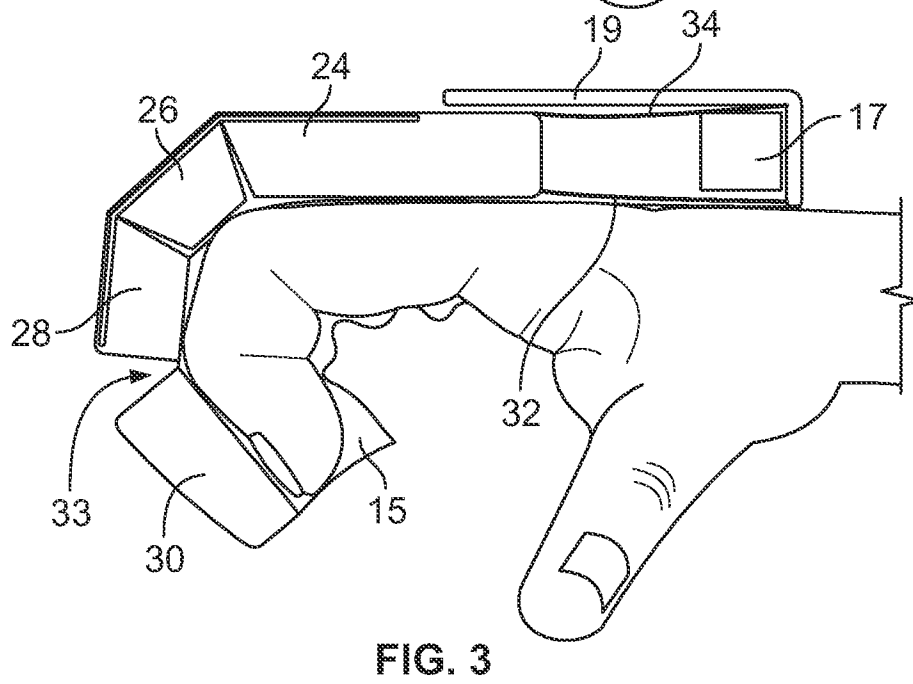
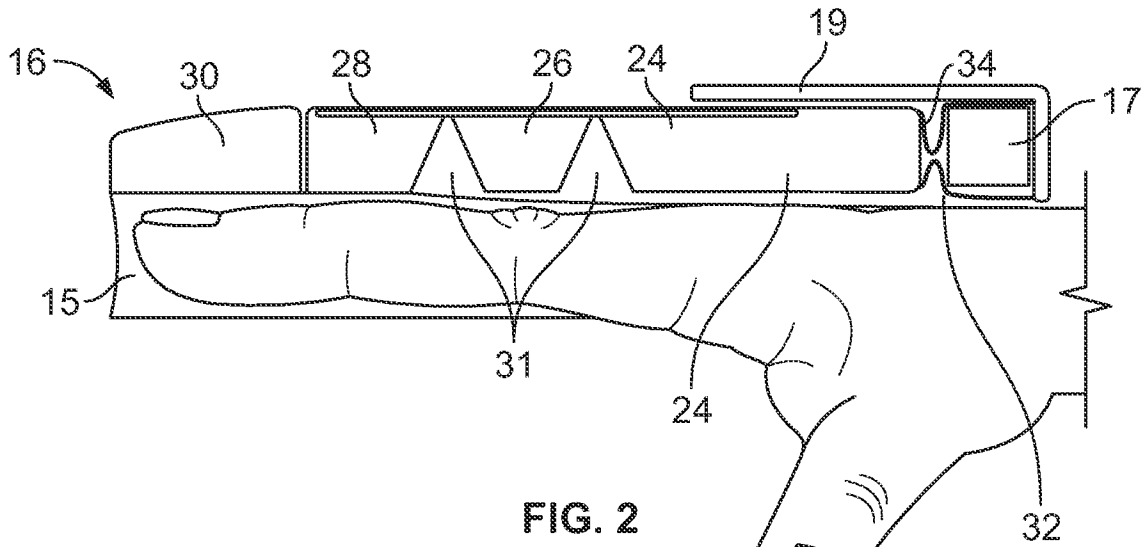


FIG. 1



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2013/052046

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A41D 19/00 (2013.01) USPC - 2/161.1 According to International Patent Classification (IPC) or to both national classification and IPC		
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patent, Google, YouTube		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0091721 A1 (BEST) 05 May 2005 (05.05.2005) entire document	17, 19, 20
Y		1-16, 18
Y	US 5,745,916 A (LINNER) 05 May 1998 (05.05.1998) entire document	1-16, 18
Y	US 2012/0131714 A1 (COPELAND et al) 31 May 2012 (31.05.2012) entire document	2
Y	US 5,717,994 A (GOLDSMITH) 17 February 1998 (17.02.1998) entire document	11, 12
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		
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Date of the actual completion of the international search 28 November 2013	Date of mailing of the international search report <div style="text-align: center; font-size: 1.5em; font-weight: bold;">12 DEC 2013</div>	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774	