

Patent Alert September 2026

Conductive Textiles

This month's selection in brief

This month's patent alert highlights recent innovations in conductive textiles and smart clothing systems. Conductive textiles are a rapidly evolving field that combines textile engineering with electric properties, enabling wearable systems for health monitoring, motion sensing, data transmission, and personal protective equipment (PPE). As demand for textile-integrated electronics continues to grow, innovation is increasingly focused on improving conductivity, stretchability, durability, washability, and signal reliability.

Link with Centexbel activities:

- News: Conductive clothing certification

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1. A WEARABLE BIOPOTENTIAL ACQUISITION SYSTEM BASED ON GRAPHENE ELECTRODES

Patent number: WO2026029745A1

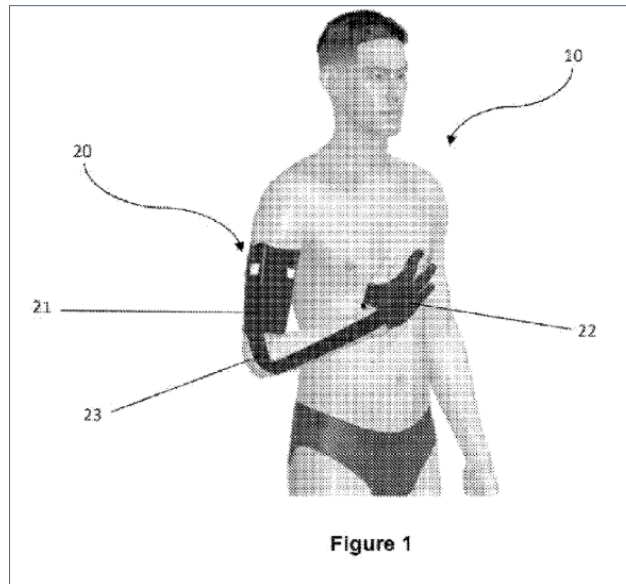
Publication date: 2026-02-05

Applicant(s): SABANCI UNIV NANOTEKNOLOJI ARASTIRMA VE UYGULAMA MERKEZI SUNUM [TR]

Inventor(s): YAPICI MURAT KAYA [TR]; GULER SAYGUN [TR]; ASLANGER KARTAL EMRE [TR]

Summary

The system proposed in the present invention is a wearable electrocardiogram system comprising an integrated glove component equipped with a mobile exploring electrode arranged at the tip of the index finger. This innovative biopotential acquisition approach harnesses graphene's qualities and allows the user to place said electrode anywhere within the reach of his/her body. While conventional textile-based wearable applications primarily only focus on single-channel ECG measurements (namely, LEAD I, II, III), the innovative paradigm of the present invention makes it possible to capture multi-channel ECG data reliably and accurately.



2. ANTISTATIC CORE/SHEATH ROPE

Patent number: EP4339340A1

Publication date: 2024-03-20

Applicant(s): TEUFELBERGER FIBER ROPE GMBH [AT]

Inventor(s): RÜHRNÖSSL ERICH [AT]; ERNST BJÖRN [AT]; SCHIEMER SUSANNE [AT]; DORNETSHUBER ROLAND [AT]

Summary

The invention refers to a rope (3) made of a textile fiber material, comprising a rope core (6) and a sheath (7) surrounding the rope core (6), wherein the rope (3) comprises at least one antistatic multifilament yarn (5) or antistatic monofilament that is located in the rope core (6), in the sheath (7), in an intermediate sheath (8) located between the rope core (6) and the sheath (7) and/or in a reinforcement located between the rope core (6) and the sheath (7), wherein the antistatic monofilament or individual filaments (12) of the antistatic multifilament yarn (5) each comprise a conductive fiber core (13) sheathed with a non-conductive plastic sheath (14), and the at least one antistatic multifilament yarn (5) or antistatic monofilament is twisted with a twine (16) or yarn of a different material, wherein the other material of the twine (16) or yarn is preferably UHMWPE or PES.

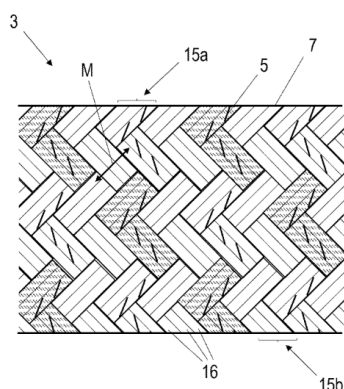


Fig. 3

3. FABRIC AND TEXTILE PRODUCT

Patent number: JP2025068220A

Publication date: 2025-04-28

Applicant(s): TEIJIN LTD

Inventor(s): SATO AIKU

Summary

To provide a fabric and a textile product which are excellent in flame retardancy, antistatic properties, and appearance quality. SOLUTION: In a fabric containing a meta-type wholly aromatic polyamide fiber and a conductive fiber, the conductive fiber contains a cationic dyeable polyester ingredient, both of the meta-type wholly aromatic polyamide fiber and the conductive fiber are colored, and a triboelectric charge quantity measured by a JIS L1094-2014 C method is 3.5 $\mu\text{C}/\text{m}^2$ or less.

4. BELT AND CLOTHING

Patent number: US12507742B2

Publication date: 2025-12-30

Applicant(s): MITSUFUJI CORP [JP]; SUMITOMO BAKELITE CO [JP]

Inventor(s): MITERA HIDEYUKI [JP]; OKADA JUN [JP]; SATO MOTOKI [JP]; YAMANOI YUMIKO [JP]

Summary

A belt or clothing using an electrode having higher noise resistance and higher durability than an electrode formed of only a conductive fiber fabric or a conductive elastomer fabric. Clothing includes an electrode and an insulating fiber fabric in a detection region. The electrode is inside the detection region of the clothing so as to make contact with the body of the wearer. The insulating fiber fabric is a clothing material worn by the wearer and is a fabric that constitutes most of the clothing. The electrode includes a conductive fiber fabric layer and a conductive elastomer layer. The conductive fiber fabric layer is a fiber fabric formed by weaving or knitting a yarn including conductive fibers having conductivity. The conductive elastomer layer is formed by applying paste including an elastomer composition and a conductive filler onto an inner surface of the conductive fiber fabric layer and drying the paste.

U.S. Patent Dec. 30, 2025 Sheet 1 of 12 US 12,507,742 B2

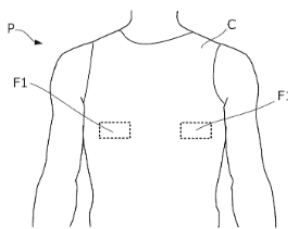


FIG. 1

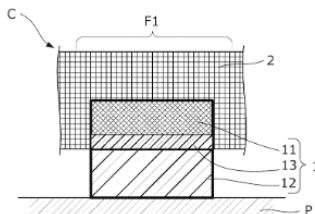


FIG. 2

5. KNITTED FABRIC

Patent number: JP2023133778A

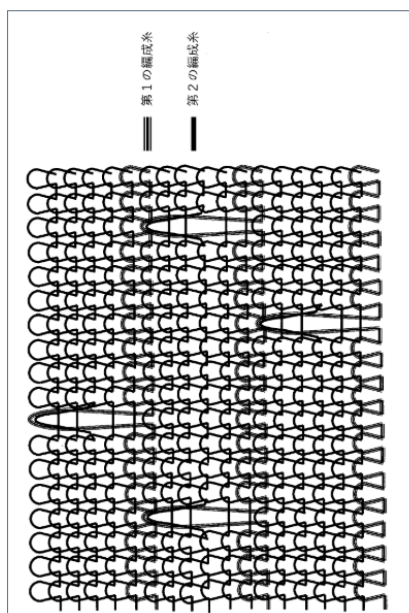
Publication date: 2023-09-27

Applicant(s): ICHIMURA SANGYO CO LTD; TORAY TEXTILE INC

Inventor(s): TAKEUCHI KOJI; FUSHIYA MASANORI; YAMAMOTO AKIFUMI

Summary

To provide a knitted fabric excellent in stretchability, designability and antielectricity. SOLUTION: A knitted fabric is formed by using at least a first knitting yarn in which a non-conductive fiber is covered with a conductive fiber and a second knitting yarn formed only of the non-conductive fiber. In an area ratio, 15% or more of a surface of the first knitting yarn is covered with the conductive fiber having electric resistance value of $10^9 \Omega/\text{cm}$ or less. When mass of the knitted fabric is 100 mass%, the content of the conductive fibers in the knitted fabric is 0.5 to 10 mass%, and the knitted fabric has a portion at which the first knitting yarn forms a stitch with the other first knitting yarn by skipping the second knitting yarn.



6. ASSEMBLY OF A FLEXIBLE ELECTRODE AND A CONDUCTIVE YARN AND WEARABLE ARTICLE INCLUDING THE ASSEMBLY

Patent number: WO2024149818A1

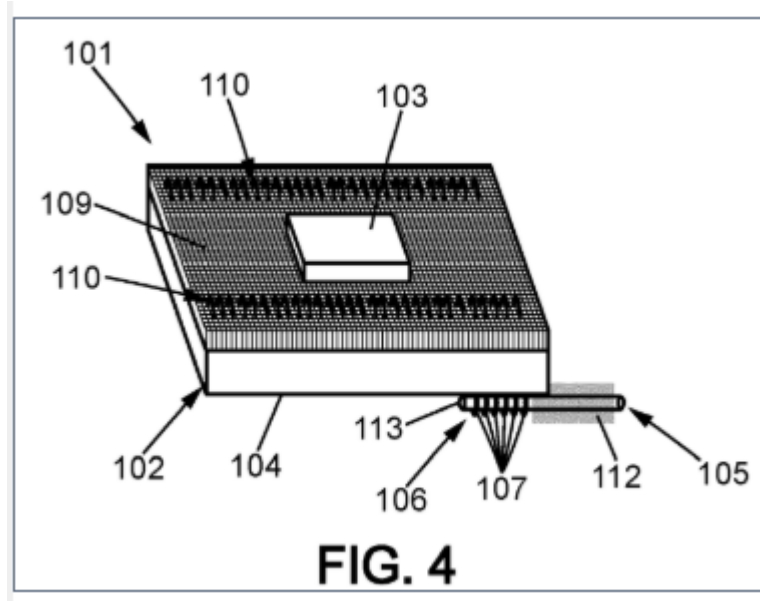
Publication date: 2024-07-17

Applicant(s): CHRONOLIFE [FR]

Inventor(s): ROGER HARMONY [FR]

Summary

The disclosure refers to an electrode assembly (101), comprising:- a flexible electrode (102) having a front face (108) and a back face (104), the front face (108) comprising at least one contact area (103) to be applied to a body of a user and a border area (111) surrounding the at least one contact area (103);- a first yarn (106) sewn in the border area (111) of the flexible electrode (102) and forming loops (107) on at least the back face (104); and- a conductive yarn (105) passing through at least one of the loops (107) on the back face and maintained on the flexible electrode (102) by the first yarn (106).



7. CONDUCTIVE ELASTOMERIC FILAMENTS AND METHOD OF MAKING SAME

Patent number: WO2022198299A1

Publication date: 2022-09-29

Applicant(s): MYANT INC [CA]

Inventor(s): ESKANDARIAN LADAN [CA]; ALIZADEH-MEGHRAZI MILAD [CA]; MAHNAM AMIN [CA]; CHAHINE TONY [CA]; GOLMOHAMMADI ROSTAMI SAHAR [CA]; TOOSI AMIRALI [CA]

Summary

A biocompatible yarn comprising a conductive elastomeric filament, the conductive elastomeric filament comprising a elastomeric polymer and conductive filler.

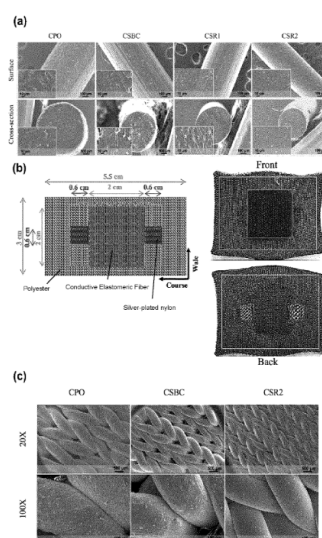


FIG. 4

8. GLOVE

Patent number: EP4356771B1

Publication date: 2025-12-03

Applicant(s): SHOWA GLOVE CO [JP]

Inventor(s): YONEMITSU HOSEI [JP]

Summary

An aspect of the present invention is a glove including a glove main body knitted with a yarn made of fiber, the glove main body including: a main body portion; five finger-receiving portions each having a bottomed cylindrical shape; and a cylindrical cuff portion, wherein the main body portion is formed into a bag shape to cover a palm and a dorsal side of a wearer's hand, the five finger-receiving portions extend from the main body portion to cover each of a first finger to a fifth finger of the wearer, and the cuff portion extends in a direction opposite to the five finger-receiving portions, in at least a part of a palm part, the main body portion has a repeating structure of a strip-shaped electrically conductive part containing an electrically conductive yarn; and a strip-shaped electrically non-conductive part not containing the electrically conductive yarn, the main body portion has unevenness on a front face thereof, in which the electrically conductive part is a concave portion and the electrically non-conductive part is a convex portion, the electrically conductive part consists of an electrically

conductive composite yarn including: the electrically conductive yarn; and a core yarn covered with the electrically conductive yarn, the electrically conductive yarn is disposed across the front face and a back face of the main body portion, and an elongation rate of the core yarn is no greater than 3%.

EP 4 356 771 B1

FIG 1

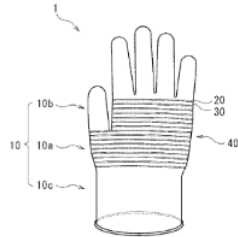


FIG 2

