

11 Documents

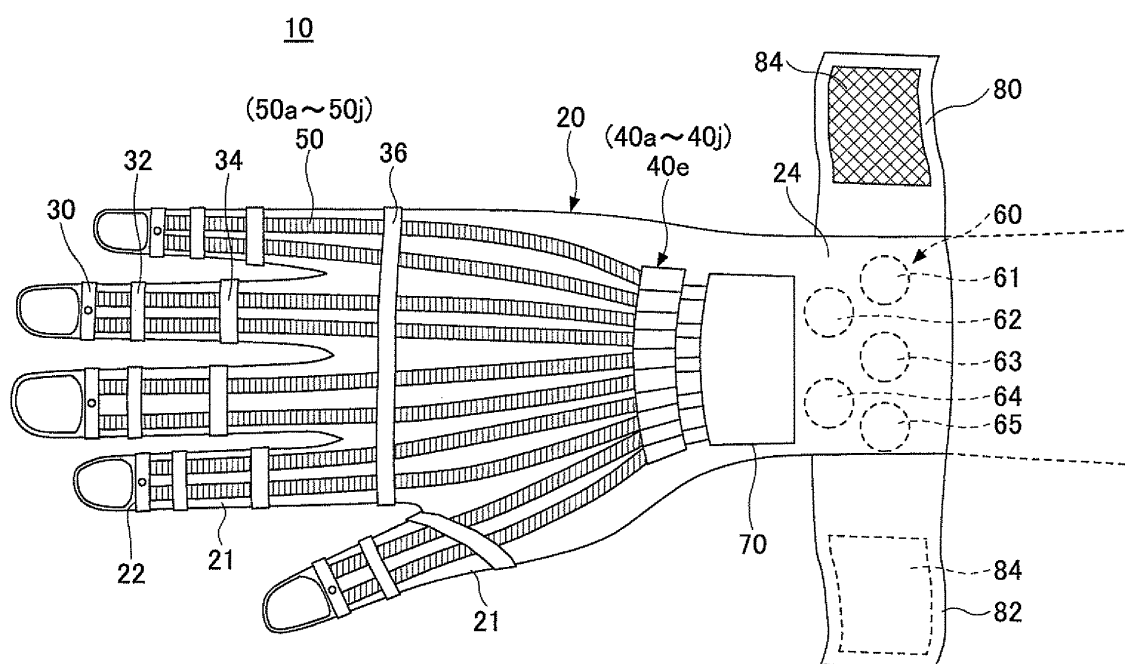
Publication numbers	Title	Current assignees
WO2010117065 A1	Wearable motion assist device	UNIVERSITY OF TSUKUBA
CN104127187 A	Wearable system and method for cardinal symptom quantitative detection of Parkinson patients	DAI HOUDE
WO2004114107 A1	Human-assistive wearable audio-visual inter-communication apparatus.	QADIR NADEEM MOHAMMAD
US9235742 B1	Wearable scanners	AMAZON TECHNOLOGIES
CN106420256 A	Wearable flexible upper limb rehabilitation robot based on lasso driving and working method	UNIVERSITY NANJING AERONAUTICS & ASTRONAUTICS
CN105983214 A	Wearable swimming propelling device	ZHANG JIANSONG
US8306673 B1	WEARABLE Wireless Controller	MANNING DOUG, ...
US20140322679 A1	Method and apparatus for writing form training	DEVINE-BAILLARGEON AIDAN
US20060109645 A1	Hand worn illuminated framework	FERRARI JOHN S, ...
CA2971539 A1	Tremor stabilisation apparatus and methods	GYROGEAR
CN206391365U U	When teaching draw case is in use,	UNIVERSITY PUTIAN

configured to move the linear member in an extending direction or a bending direction of the finger insertion part based on the drive control signal from the control part.

Title

Wearable motion assist device

Images



Publication data including kind & date

WO2010117065	A1	2010-10-14	WO2010117065
JP2010240285	A	2010-10-28	JP2010240285
KR20110127252	A	2011-11-24	KR20110127252
US2012029399	A1	2012-02-02	US20120029399
EP2417941	A1	2012-02-15	EP2417941
CN102387760	A	2012-03-21	CN102387760
EP2417941	A4	2012-10-31	EP2417941
KR101361999	B1	2014-02-11	KR101361999
JP5472680	B2	2014-04-16	JP5472680
CN104188740	A	2014-12-10	CN104188740
CN104188739	A	2014-12-10	CN104188739
US8998831	B2	2015-04-07	US8998831
CN102387760	B	2015-06-10	CN102387760B
HK1167588	A1	2016-05-06	HK1167588
CN104188740	B	2016-06-22	CN104188740B
CN104188739	B	2017-01-11	CN104188739B



Publication dates

2010-10-14

2010-10-28

2011-11-24

2012-02-02

2012-02-15

2012-03-21

2012-10-31

2014-02-11

2014-04-16

2014-12-10

2014-12-10

2015-04-07

2015-06-10

2016-05-06

2016-06-22

2017-01-11

Abstract

(EP2417941)

A **wearable** type movement assisting apparatus includes a movement assisting **glove** including a finger insertion part into which a finger of a wearer is inserted, a driving part arranged on a backhand side of the movement assisting **glove** and configured to drive the finger insertion part, a linear member arranged along the finger insertion part and configured to transmit a driving force of the driving part to the finger insertion part, a biosignal detection part configured to detect a biosignal that causes the finger of the wearer to move, and a control part configured to output a drive control signal to the driving part based on the biosignal detected by the biosignal detection part. The driving part is configured to move the linear member in an extending direction or a bending direction of the finger insertion part based on the drive control signal from the control part.

Inventors

SANKAI YOSHIYUKI

Latest standardized assignees - inventors removed

UNIVERSITY OF TSUKUBA

Application dates

2009-04-09

2010-04-09

2010-04-09

2010-04-09

2010-04-09

2010-04-09

2010-04-09

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2012-08-27

Priority numbers

2009JP-0094695

2010CN-80016060

2010WO-JP56470

Application number

WOJP2010056470

JP2009094695

KR20117023351

US13/263,082

EP10761764

CN201080016060

CN201410415255

CN201410415108

HK12108373

Publication numbers

WO2010117065

JP2010240285

KR20110127252

US2012029399

EP2417941
 CN102387760
 EP2417941
 KR101361999
 JP5472680
 CN104188740
 CN104188739
 US8998831
 CN102387760
 HK1167588
 CN104188740
 CN104188739

Questel unique family ID (FAN)

7637086

Family publication details

WO2010117065	A1	2010-10-14	WO2010117065				
JP2010240285	A	2010-10-28	JP2010240285				
KR20110127252	A	2011-11-24	KR20110127252				
US2012029399	A1	2012-02-02	US20120029399				
EP2417941	A1	2012-02-15	EP2417941				
CN102387760	A	2012-03-21	CN102387760				
EP2417941	A4	2012-10-31	EP2417941				
KR101361999	B1	2014-02-11	KR101361999				
JP5472680	B2	2014-04-16	JP5472680				
CN104188740	A	2014-12-10	CN104188740				
CN104188739	A	2014-12-10	CN104188739				
US8998831	B2	2015-04-07	US8998831				
CN102387760	B	2015-06-10	CN102387760B				
HK1167588	A1	2016-05-06	HK1167588				
CN104188740	B	2016-06-22	CN104188740B				
CN104188739	B	2017-01-11	CN104188739B				

Priority dates

2009-04-09

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Application dates

2009-04-09

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2010-04-09

2010-04-09

2010-04-09

2012-08-27

Publication dates

2010-10-14

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2012-02-02

2012-02-15

2012-03-21

2012-10-31

2014-02-11

2014-04-16

2014-12-10

2014-12-10

2015-04-07

2015-06-10

2016-05-06

2016-06-22

2017-01-11

Grant dates

(US8998831)

2015-04-07

(JP5472680)

2014-04-16

(KR101361999)

2014-02-11

(CN102387760B)

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2016-05-06

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2016-06-22

(CN104188739B)

2017-01-11

Expected expiry dates

(EP2417941)

2030-04-09

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2031-09-10

(US2012029399)

2031-09-10

(JP2010240285)

2029-04-09

(KR20110127252)

2030-04-09

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2030-04-09

(CN104188740)

2030-04-09

(CN104188739)

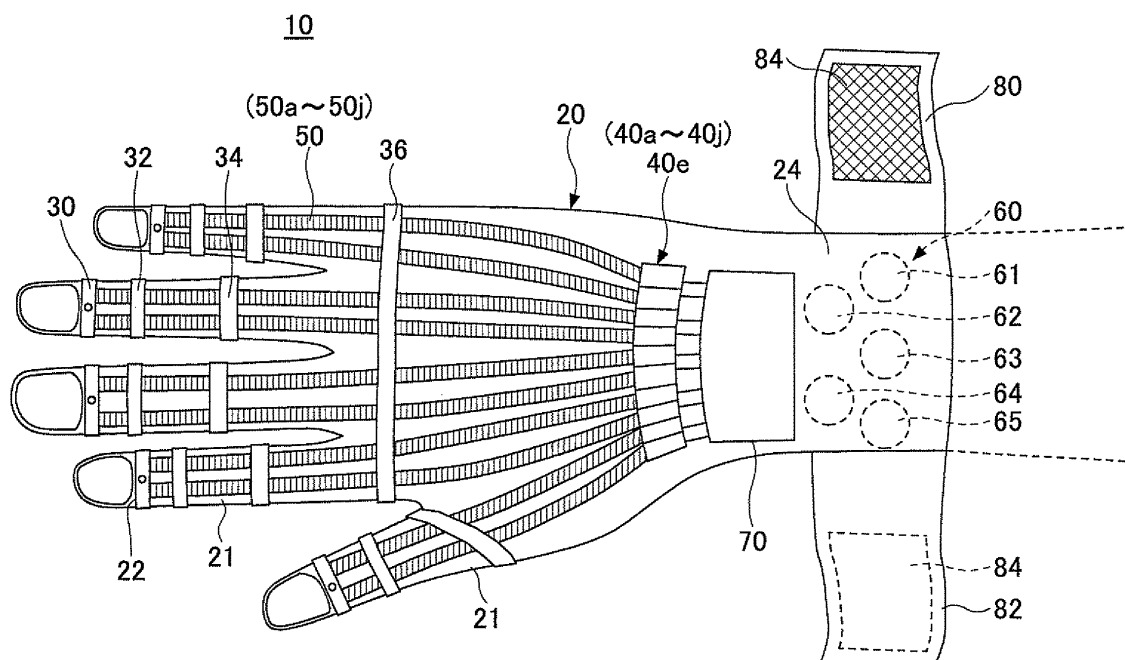
2030-04-09

Title

Wearable motion assist device

PERMISSIBLE VALUE(5,1)
 PERSON MOVEMENT(5,1)
 PHASE EXTRACTION(5,1)
 POTENTIAL BIOLOGICAL STATE(5,1)
 QUADRILATERAL SHAPE(5,1)
 RECTANGULAR WAVE(5,1)
 ROTATIONAL ANGLE(5,1)
 SATIN(5,1)
 SECONDARY CURRENT CREATION(5,1)
 TASK ACTION(5,1)
 TIMER SWITCH(5,1)
 TORQUE DETECTION SIGNAL(5,1)
 TUBULAR MEMBER APPEARANCE(5,1)
 WIRELESS SIGNAL(5,1)

Images



Claims

(EP2417941)

1. A **wearable** type movement assisting apparatus comprising: a movement assisting **glove** including a finger insertion part into which a finger of a wearer is inserted; a driving part arranged on a backhand side of the movement assisting **glove** and configured to drive the finger insertion part; a linear member arranged along the finger insertion part and configured to transmit a driving force of the driving part to the finger insertion part; a biosignal detection part configured to detect a biosignal that causes the finger of the wearer to move; and a control part configured to output a drive control signal to the driving part based on the biosignal detected by the biosignal detection part; wherein the driving part is configured to move the linear member in an extending direction or a bending direction of the finger insertion part based on the drive control signal from the control part.
2. The **wearable** type movement assisting apparatus as claimed in claim 1, wherein the linear member is fixed along a side part or a backhand side of the finger insertion part of the movement assisting **glove** and configured to transmit the driving force to the finger insertion part.
3. The **wearable** type movement assisting apparatus as claimed in claim 1, wherein plural of the linear members are arranged along the finger insertion part of the movement assisting **glove**, wherein the driving force is transmitted in a movement direction of a joint of the finger by expansion or contraction of the plural linear members.

hand.

A plurality of linear members 50 are disposed along the extending direction of each finger on the side of the motion assisting glove 20 corresponding to the back of wearer's hand.

The plurality of linear members 50 operate in the extending directions or bending directions and also the respective fingers of the motion assisting glove 20 operate in the extending directions or bending directions integrally with the linear members 50.

ETIH

(EP2417941)

Wearable motion assist device

(EP2417941)

Wearable motion assist device

(WO2010117065)

Wearable motion assist device

(US20120029399)

Wearable type movement assisting apparatus

(US8998831)

Wearable type movement assisting apparatus

(JP2010240285)

Wearable motion assisting device

(JP5472680)

Wearable motion assisting apparatus

(KR20110127252)

Wearable motion assist device

(KR101361999)

Wearable motion assist device

(CN102387760)

Wearable motion assist device

(CN102387760B)

Wearable motion assist device

(HK1167588)

Wearable motion assist device

(CN104188740)

Wearable motion assist device

(CN104188740B)

Wearable type movement assisting apparatus

(CN104188739)

Wearable motion assist device

(CN104188739B)

Wearable type movement assisting apparatus

ICLM

(EP2417941)

1. A wearable type movement assisting apparatus comprising: a movement assisting glove including a finger insertion part into which a finger of a wearer is inserted; a driving part arranged on a backhand side of the movement assisting glove and configured to drive the finger insertion part; a linear member arranged along the finger insertion part and configured to transmit a driving force of the driving part to the finger insertion part; a biosignal detection part configured to detect a biosignal that causes the finger of the wearer to move; and a control part configured to output a drive control signal to the driving part based on the biosignal detected by the biosignal detection part; wherein the driving part is configured to move

the linear member in an extending direction or a bending direction of the finger insertion part based on the drive control signal from the control part.

OBJ

(EP2417941)

[0001] The present invention relates to a **wearable** type movement assisting apparatus, for example, a **wearable** type movement assisting apparatus for assisting or substituting movement of finger joints.

[0007] According to an aspect of the present invention, a driving force of a driving part allows a finger joint of a wearer to move by expanding or contracting a linear member in a movement direction of the finger joint in accordance with a drive control signal from a control part.

TI

(EP2417941)

Wearable motion assist device

Technology domains

Furniture, games

Medical technology

CPC - Cooperative classification

A61B-005/04/001; A61B-005/0476; A61B-005/0488/8; A61B-005/11/21; A61B-005/11/25; A61B-005/6806; A61B-005/6812; A61F-002/72; A61F-005/01/3; A61F-2002/7625; A61F-2002/7635; A61F-2005/0188; A61H-001/02/85; A61H-001/02/88; A61H-2201/149; A61H-2201/165; A61H-2201/5058; A61H-2201/5061; A61H-2201/5069; A61H-2230/105; A61H-2230/605

IPC - International classification

A61B-005/00; A61B-005/04; A61B-005/0476; A61B-005/0488; A61B-005/11; A61F; A61F-002/56; A61F-002/72; A61F-002/76; A61F-005/01; A61H; A61H-001/00; A61H-001/02; A61H-005/00; A63B-023/16; A63B-069/00

PCL - US patent classification

PCLO=601040000; PCLX=601005000; PCLX=601023000

FI (File Index)

A61F2/72; A61H1/02 K; B25J13/00 Z; B25J15/10

F-term (File Forming Term)

3C707 AS35; 3C707 AS38; 3C707 HS07; 3C707 HT04; 3C707 XK03; 3C707 XK06; 3C707 XK19; 3C707 XK21; 3C707 XK35; 3C707 XK45; 3C707 XK56; 3C707 XK59; 3C707 XK82; 3C707 XK85; 3C707 XK86; 4C046 AA09; 4C046 AA45; 4C046 AA47; 4C046 BB05; 4C046 CC04; 4C046 DD02; 4C046 DD03; 4C046 DD06; 4C046 DD13; 4C046 DD40; 4C046 DD43; 4C046 DD45; 4C046 EE02; 4C046 EE06; 4C046 EE11; 4C046 EE12; 4C046 EE15; 4C046 FF12; 4C097 AA12; 4C097 BB02; 4C097 BB06; 4C097 BB07; 4C097 BB08; 4C097 CC09; 4C097 CC10; 4C097 TA03; 4C097 TB01; 4C097 TB05; 4C097 TB08; 4C097 TB09

ECLA - European classification

A61B-005/0488H; A61B-005/11S; A61B-005/68B1D2; A61B-005/68B1K; A61F-005/01D7; A61H-001/02M5; A61H-001/02M5F; K61B-005/0476; K61B-005/04B; K61B-005/11U2; K61F-002/72; K61F-002/76M2; K61F-002/76M4; K61F-005/01D12; K61H-201/14M2; K61H-201/16A20; K61H-201/50S2; K61H-201/50S6; K61H-201/50S; K61H-230/10A; K61H-230/60A

Citing patents - Standardized publication number

CN105641877

CN107184366;CN107184366B

CN107184366;CN107184366B

EP2954988

EP3106133

EP3171844

FR3024030

WO201612480

Wearable system and method for cardinal symptom quantitative detection of Parkinson patients
CN104127187 A

Current assignees

DAI HOUE

Inventors

DAI HOUE

Priority data including date

2014CN-0381634 2014-08-05

IPC - International classification

A61B-005/11*

Family[CN104127187](#)

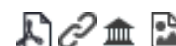
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2014-11-05

[CN104127187](#)

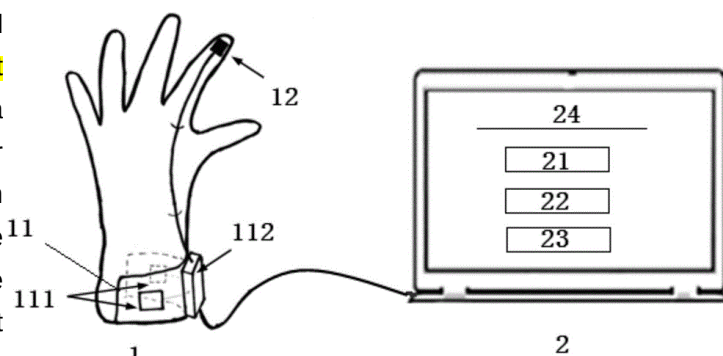
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2017-04-05



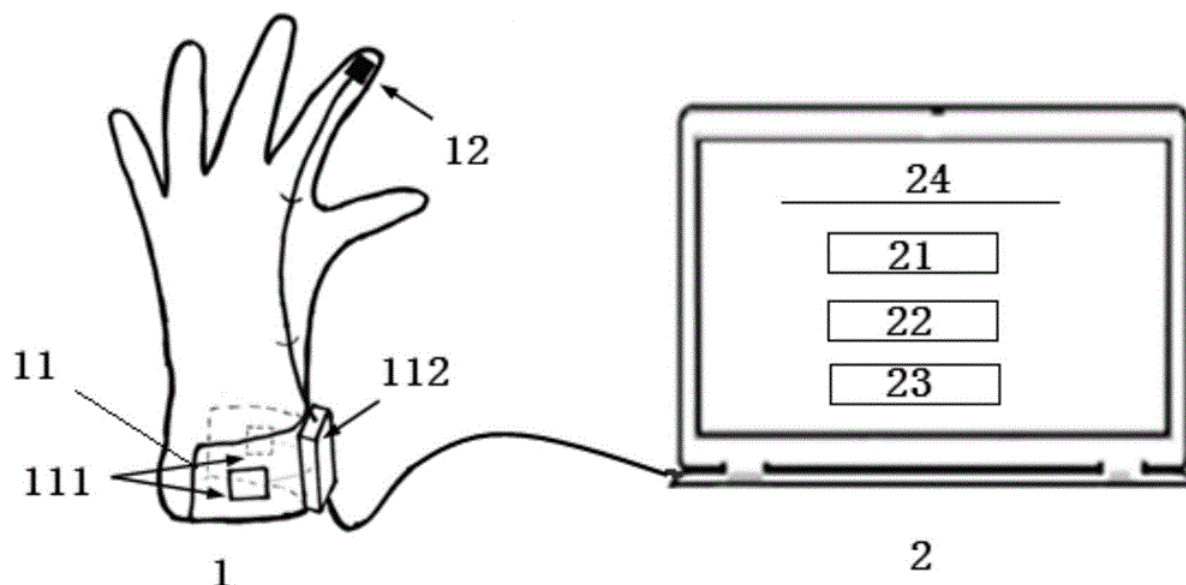
(CN104127187B)

The invention provides a **wearable** system and method for cardinal symptom quantitative detection of Parkinson patients. The system comprises a **glove** and a computer, wherein the **glove** and the computer are connected through wires or in a wireless mode. The **glove** further comprises a **wrist** module and a fingertip module. The **wrist** module and the fingertip module are worn on the fingertips and the **wrist** of a patient respectively. A tremor detection module, a tremor amplitude steady state detection module, a muscular rigidity detection module and a slow movement symptom detection module are arranged in the computer and are used for tremor detection, tremor amplitude steady state detection, muscular rigidity detection and slow movement symptom detection of the Parkinson patients and displaying detection results. For the situation that the symptom judgment of different neurologists for the same patient is different, the system has the uniform quantitative detection standard. Detection of three main symptoms is integrated in one system, and the system can provide complete and comprehensive illness state detection.

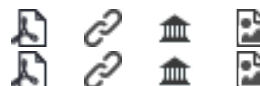


Title

Wearable system and method for cardinal symptom quantitative detection of Parkinson patients

Images**Publication data including kind & date**

CN104127187	A	2014-11-05	CN104127187
CN104127187	B	2017-04-05	CN104127187B

**Publication dates**

2014-11-05

2017-04-05

Abstract

(CN104127187B)

The invention provides a **wearable** system and method for cardinal symptom quantitative detection of Parkinson patients. The system comprises a **glove** and a computer, wherein the **glove** and the computer are connected through wires or in a wireless mode. The **glove** further comprises a **wrist** module and a fingertip module. The **wrist** module and the fingertip module are worn on the fingertips and the **wrist** of a patient respectively. A tremor detection module, a tremor amplitude steady state detection module, a muscular rigidity detection module and a slow movement symptom detection module are arranged in the computer and are used for tremor detection, tremor amplitude steady state detection, muscular rigidity detection and slow movement symptom detection of the Parkinson patients and displaying detection results. For the situation that the symptom judgment of different neurologists for the same patient is different, the system has the uniform quantitative detection standard. Detection of three main symptoms is integrated in one system, and the system can provide complete and comprehensive illness state detection.

Inventors

DAI HOUDE

Application dates

2014-08-05

Priority numbers

2014CN-0381634

Application number

CN201410381634

Publication numbers

CN104127187

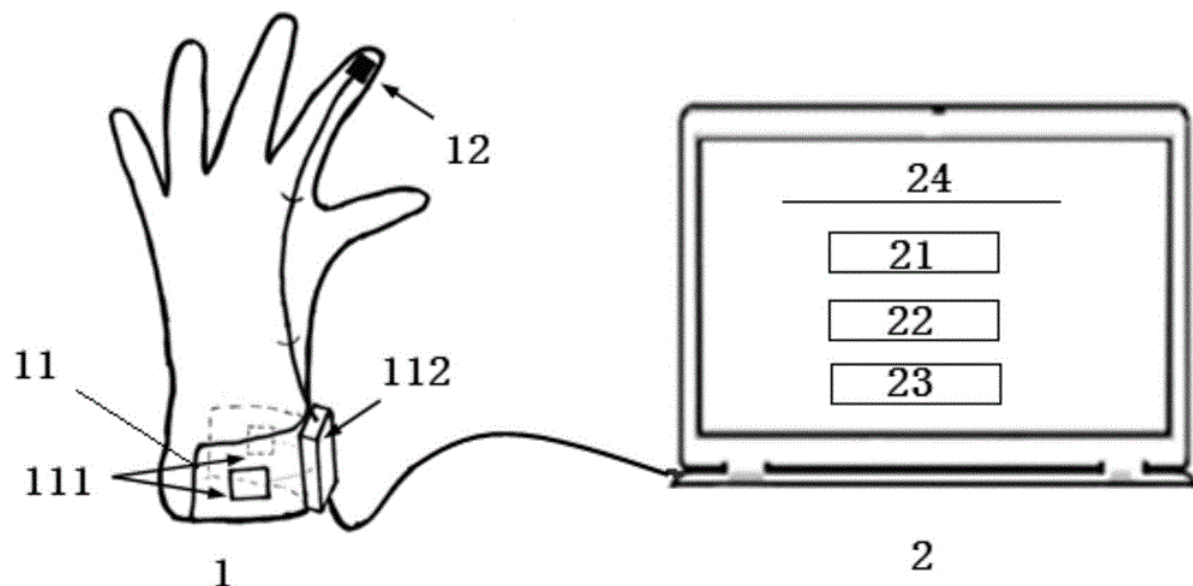
CN104127187

Questel unique family ID (FAN)

67880412

CLINICAL SETTING(3,1)
 CLOCK INTERRUPT MODE(3,1)
 COMPUTER GRAPHICAL INTERFACE(3,1)
 COMPUTER USB INTERFACE(3,1)
 ELBOW JOINT PASSIVE FREQUENCY(3,1)
 EXAMINER PRESSURE MATRIX(3,1)
 MAJOR QUANTITATIVE DETECTION(3,1)
 MEASUREMENT DURATION(3,1)
 MEASURING FLUCTUATION(3,1)
MOTOR SYMPTOM DETECTION(3,1)
 NEUROSURGEON(3,1)
 ONEDIMENSIONAL SIGNAL(3,1)
 PATIENT ARM(3,1)
 QUITE IMPORTANT SYMPTOM(3,1)
 RECIPROCATION(3,1)
 SERIAL USB CONVERSION(3,1)
 SIGNAL FUSION(3,1)
 SLOW MOVEMENT PATIENT SYMPTOM(3,1)
 SQUARE SUM(3,1)
 SURGICAL TREATMENT(3,1)
 SYMPTOM PARAMETER SLOW MOVEMENT(3,1)
 TORQUE EQUATION(3,1)
 TOUCH DISPLAY(3,1)
 USB COMMUNICATION INTERFACE(3,1)
 WHOLE EVALUATION(3,1)

Images



Claims

(CN104127187)

1. A **wearable** system for quantitative detection of a Parkinson's patient principal symptoms, the system includes **glove** and associated computer; **glove** further includes a **wrist** module and the finger tip module, which module is worn on the patient's finger and a **wrist**, characterized in: A **wrist** module includes a sensor, a microcontroller, wherein the sensor is a microelectromechanical system motion measurement module 1st the differential output of the pressure sensor set and the composition, for collecting measurement data regarding muscle rigidity, and the collected data is communicated to microcontroller; A fingertip 2nd the MEMS motion measuring means comprises, for collecting measurement data and a

Human-assistive **wearable** audio-visual inter-communication apparatus. WO2004114107 A1

Current assignees

QADIR NADEEM MOHAMMAD

Inventors

QADIR NADEEM MOHAMMAD

Priority data including date

2003WO-JP07863 2003-06-20

IPC - International classification

G06F-003/00* G06F-003/01 G09B-021/00
G09B-021/04

CPC - Cooperative classification

G06F-003/01/4* G09B-021/00/9 G09B-021/04

Family

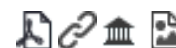
[WO2004114107](#)

A1 2004-12-29



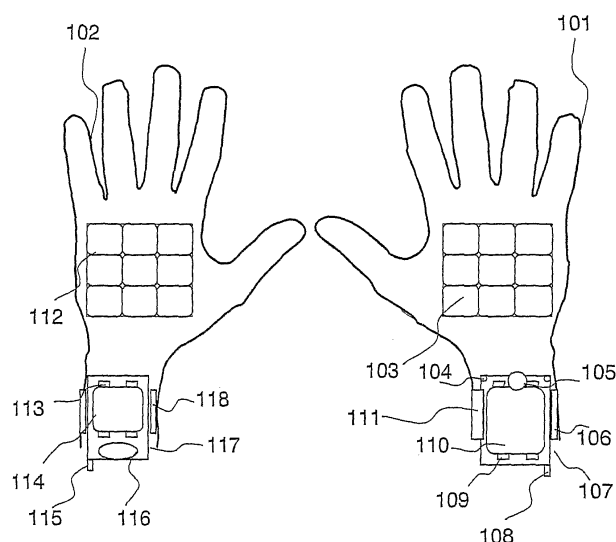
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A1 2005-01-04



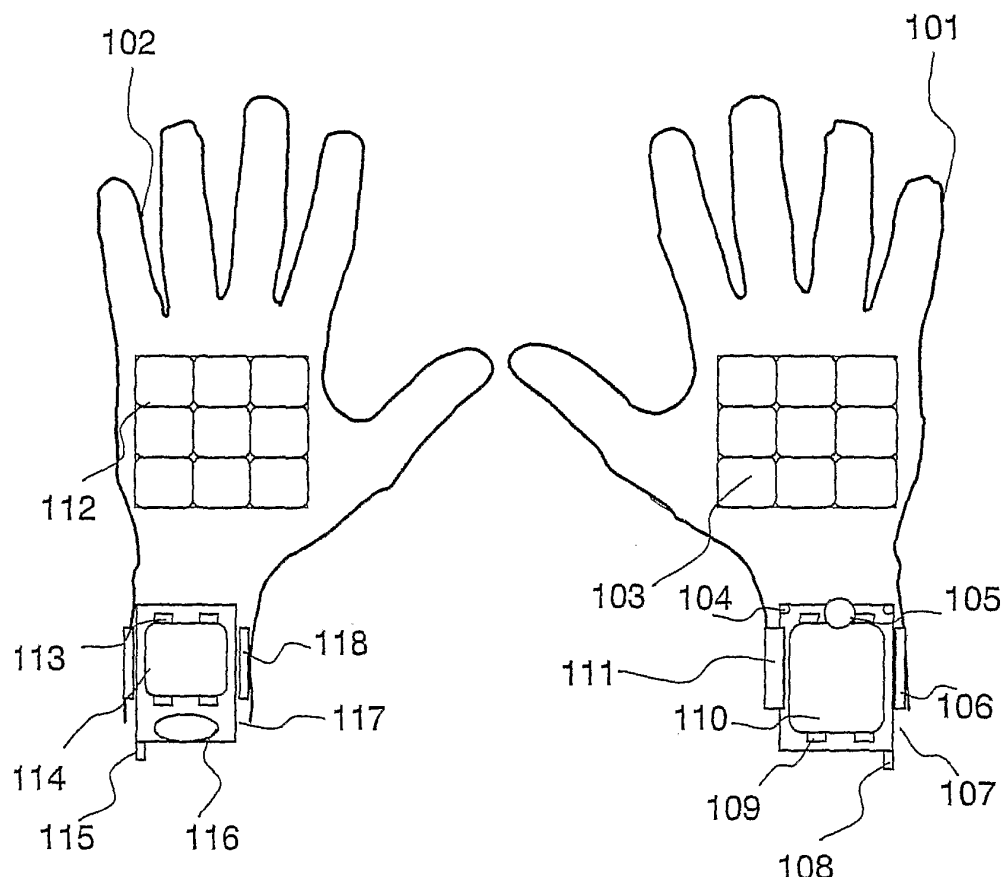
(WO2004114107)

In this **wearable** human-assistive audio-visual inter-communication apparatus, bend sensors, force sensors and one or more accelerometer are installed to two gloves for a right **hand** and a left **hand**, and two **wrist** devices are mounted within the gloves. Each device receives sensor data from the sensors installed to the **glove**. Two **wrist** devices communicate with each other. One of them gathers sensor data detected by two **wrist** devices and the data to digitally coded sign language information, and output speech, text, graphical animation, etc. corresponding to the sign language information for both face-to-face, and face-to-remote distance without the need of external processing and communication devices.



Title

Human-assistive **wearable** audio-visual inter-communication apparatus.

Images**Publication data including kind & date**

WO2004114107	A1	2004-12-29	WO2004114107
AU2003243003	A1	2005-01-04	AU2003243003

**Publication dates**

2004-12-29

2005-01-04

Abstract

(WO2004114107)

In this **wearable** human-assistive audio-visual inter-communication apparatus, bend sensors, force sensors and one or more accelerometer are installed to two gloves for a right **hand** and a left **hand**, and two **wrist** devices are mounted within the gloves. Each device receives sensor data from the sensors installed to the **glove**. Two **wrist** devices communicate with each other. One of them gathers sensor data detected by two **wrist** devices and the data to digitally coded sign language information, and output speech, text, graphical animation, etc. corresponding to the sign language information for both face-to-face, and face-to-remote distance without the need of external processing and communication devices.

Inventors

QADIR NADEEM MOHAMMAD

Application dates

2003-06-20

2003-06-20

Priority numbers

2003WO-JP07863

Application number

WOJP0307863

AU2003243003

Publication numbers

WO2004114107

AU2003243003

Questel unique family ID (FAN)

54882648

Family publication details

WO2004114107	A1	2004-12-29	WO2004114107
AU2003243003	A1	2005-01-04	AU2003243003

**Priority dates**

2003-06-20

Application dates

2003-06-20

2003-06-20

Publication dates

2004-12-29

2005-01-04

Expected expiry dates

(WO2004114107)

2007-05-23

(AU2003243003)

2006-03-09

TitleHuman-assistive **wearable** audio-visual inter-communication apparatus.**Abstract**

(WO2004114107)

In this **wearable** human-assistive audio-visual inter-communication apparatus, bend sensors, force sensors and one or more accelerometer are installed to two gloves for a right **hand** and a left **hand**, and two **wrist** devices are mounted within the gloves. Each device receives sensor data from the sensors installed to the **glove**. Two **wrist** devices communicate with each other. One of them gathers sensor data detected by two **wrist** devices and the data to digitally coded sign language information, and output speech, text, graphical animation, etc. corresponding to the sign language information for both face-to-face, and face-to-remote distance without the need of external processing and communication devices.

Current assignees

QADIR NADEEM MOHAMMAD

Inventors

QADIR NADEEM MOHAMMAD

Representative

(WO2004114107)

IAT WORLD PATENT LAW FIRM ([JP])

Advantages / Previous drawbacks

(WO2004114107)

Processing device B has built-in Vibrator **motor**, which provides many useful interfaces and communication between user and Gloves system apparatus.

The aim of the invention is to provide extremely useful, particularly device for those disables who do not know even the Sign Language.

First, they are very expensive, secondly they are not possible to carry.

Unfortunately, the converse is not possible as it is impossible for a deaf and dumb disable to speak naturally.

These combined movements where both hands touches and forces each other cannot be sensed, because there is no sensors in the said patented gloves.

Wearable scanners US9235742 B1

Current assignees

AMAZON TECHNOLOGIES*

Inventors

QADDOURA FAREED ADIB

DEACON KEITH FRANCIS

RAO MOHAN KRISHNA

Priority data including date

2013US-14108801 2013-12-17

2016US-14990060 2016-01-07

IPC - International classification

G06K-007/10*

G06K-007/14

G06T-003/60

CPC - Cooperative classification

G06K-007/10/881*

G06K-007/10/891*

G06K-007/14/13

G06K-007/14/17

G06K-007/14/47

G06Q-030/00

G06T-003/60

Family

[US9235742](#)

B1 2016-01-12



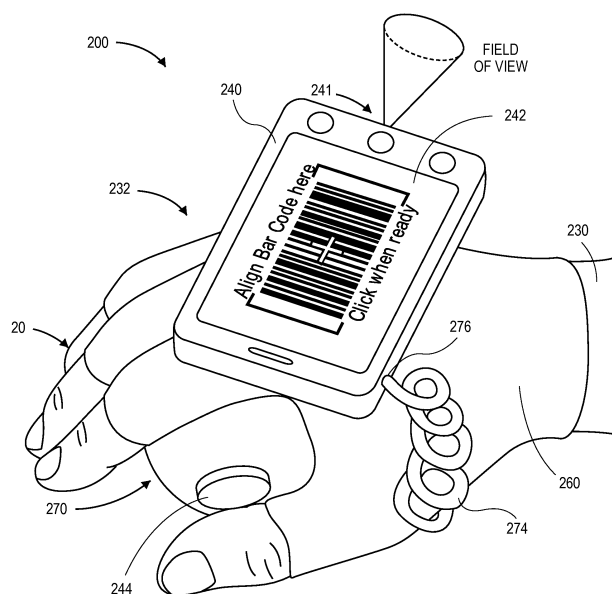
[US9514345](#)

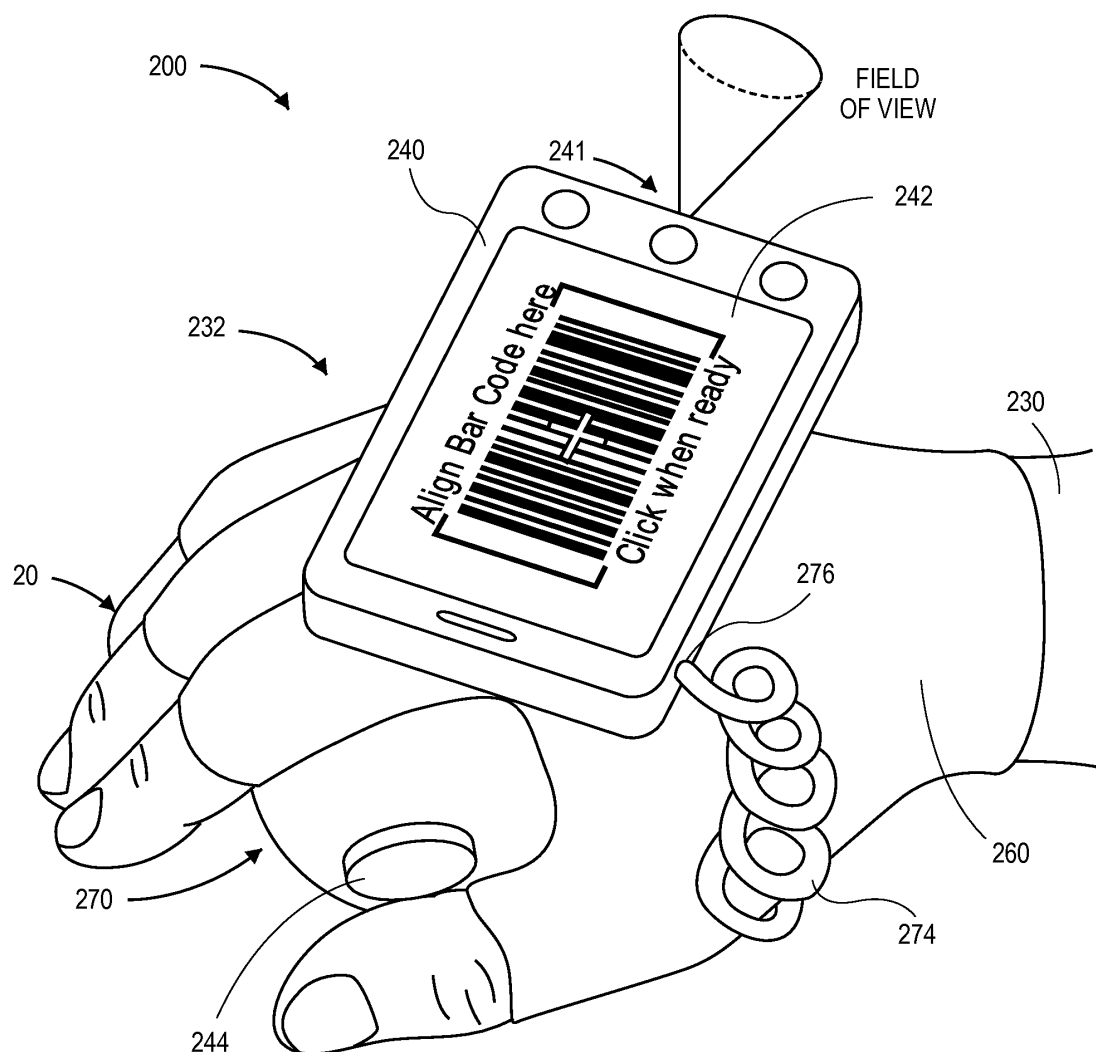
B1 2016-12-06



(US9514345)

Wearable scanners or readers may be mounted to and operated from at least one extension of the human body, such as a portion of a **hand** or **wrist** of a user. The **wearable** scanners or readers may include one or more manual or automatic actuators for initiating a scanning or reading of a marking on an object. Such actuators may be worn about the portion of the **hand** or **wrist** of the user, including within a palm of the **hand**, or in a ring-like device surrounding at least one finger of the **hand**. Additionally, the **wearable** scanners or readers may include optical elements configured to capture images in one or more directions or along one or more axes, and may further include any type of display elements (e.g., touchscreens, LED or LCD displays, or electrophoretic displays) formed in substantially flat or curved shapes.



Title**Wearable** scanners**Images****Publication data including kind & date**

US9235742	B1	2016-01-12	US9235742
US9514345	B1	2016-12-06	US9514345

**Publication dates**

2016-01-12

2016-12-06

Abstract

(US9514345)

Wearable scanners or readers may be mounted to and operated from at least one extension of the human body, such as a portion of a **hand** or **wrist** of a user. The **wearable** scanners or readers may include one or more manual or automatic actuators for initiating a scanning or reading of a marking on an object. Such actuators may be worn about the portion of the **hand** or **wrist** of the user, including within a palm of the **hand**, or in a ring-like device surrounding at least one finger of the **hand**. Additionally, the **wearable** scanners or readers may include optical elements configured to capture images in one or more directions or along one or more axes, and may further include any type of display elements (e.g., touchscreens, LED or LCD displays, or electrophoretic displays) formed in substantially flat or curved shapes.

Inventors

QADDOURA FAREED ADIB

DEACON KEITH FRANCIS

RAO MOHAN KRISHNA

Latest standardized assignees - inventors removed

AMAZON TECHNOLOGIES

Application dates

2013-12-17

2016-01-07

Priority numbers

2013US-14108801

2016US-14990060

Application number

US14/108,801

US14/990,060

Publication numbers

US9235742

US9514345

Questel unique family ID (FAN)

71968877

Family publication details

US9235742	B1	2016-01-12	US9235742
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US9514345	B1	2016-12-06	US9514345
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**Priority dates**

2013-12-17

2016-01-07

Application dates

2013-12-17

2016-01-07

Publication dates

2016-01-12

2016-12-06

Grant dates

(US9235742)

2016-01-12

(US9514345)

2016-12-06

Expected expiry dates

(US9235742)

2033-12-17

(US9514345)

2033-12-17

Title**Wearable** scanners**Abstract**

(US9514345)

Wearable scanners or readers may be mounted to and operated from at least one extension of the human body, such as a portion of a **hand** or **wrist** of a user. The **wearable** scanners or readers may include one or more manual or automatic actuators for initiating a scanning or reading of a marking on an object. Such actuators may be worn about the portion of the

Wearable flexible upper limb rehabilitation robot based on lasso driving and working method
CN106420256 A

Current assignees

UNIVERSITY NANJING AERONAUTICS &
ASTRONAUTICS*

Inventors

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WU HONGTAO
CHEN BAI
JU FENG
WANG YAOYAO

Priority data including date

2016CN-0800996 2016-09-05

IPC - International classification

A61H-001/02*	A63B-023/12	A63B-023/14
B25J-009/00	B25J-011/00	

CPC - Cooperative classification

A61H-001/02/77*	A61H-001/02/85	A61H-2201/1207
A61H-2201/14	A61H-2201/1638	A61H-2201/165
A61H-2201/1657	A61H-2201/5061	A61H-2201/5084
A61H-2205/06	A61H-2205/065	A63B-023/12/81
A63B-023/14	B25J-009/00	B25J-009/00/06
B25J-011/00		

Family

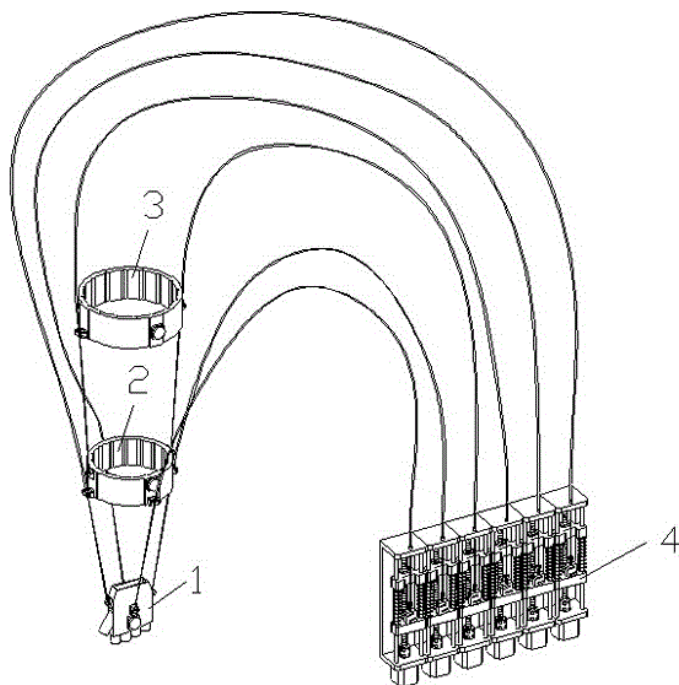
[CN106420256](#)

A 2017-02-22



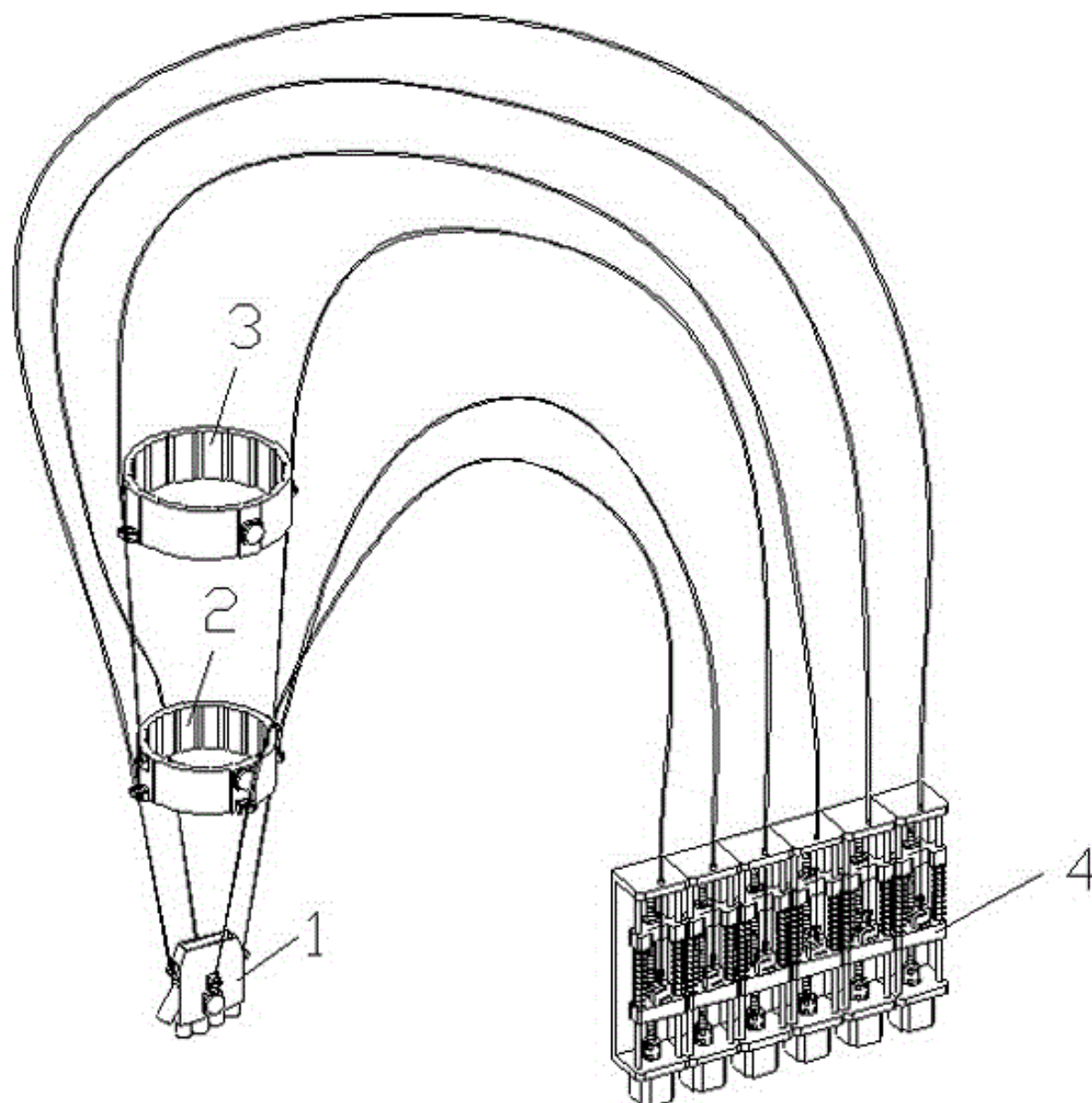
(CN106420256)

The invention discloses a **wearable** flexible upper limb rehabilitation robot based on lasso driving and a working method and belongs to the field of robots. The robot comprises a flexible **hand** module worn on the **hand** of a human body, a flexible front arm module worn on the front arm of the human body, a flexible upper arm module worn on the upper arm of the human body and a lasso driving module; the lasso driving module is connected with the flexible **hand** module, the flexible front arm module and the flexible upper arm module through lassoes and transmits driving force; inertial sensors are installed on the flexible **hand** module, the flexible front arm module and the flexible upper arm module respectively and used for measuring the posture of the upper limb of the human body in real time; springs and force sensors are installed on the lasso driving module and used for increasing the flexibility of a system and measuring the driving force in real time. The **wearable** rehabilitation robot is made from flexible materials, can complete rehabilitation training of an elbow joint and a **wrist** joint of the left **hand** or the right **hand**, achieves lightweight design and promotes the comfort and safety during training.



Title

Wearable flexible upper limb rehabilitation robot based on lasso driving and working method

Images**Publication data including kind & date**

[CN106420256](#)

A 2017-02-22 CN106420256

**Publication dates**

2017-02-22

Abstract

(CN106420256)

The invention discloses a **wearable** flexible upper limb rehabilitation robot based on lasso driving and a working method and belongs to the field of robots. The robot comprises a flexible **hand** module worn on the **hand** of a human body, a flexible front arm module worn on the front arm of the human body, a flexible upper arm module worn on the upper arm of the human body and a lasso driving module; the lasso driving module is connected with the flexible **hand** module, the flexible front arm module and the flexible upper arm module through lassoes and transmits driving force; inertial sensors are installed on the flexible **hand** module, the flexible front arm module and the flexible upper arm module respectively and used for measuring the posture of the upper limb of the human body in real time; springs and force sensors are installed on the lasso driving module and used for increasing the flexibility of a system and measuring the driving force in real time. The **wearable** rehabilitation robot is made from flexible materials, can complete rehabilitation training of an elbow joint and a **wrist** joint of the left **hand** or the right **hand**, achieves lightweight design and promotes the comfort and safety during training.

Wearable swimming propelling device
CN105983214 A

Current assignees

ZHANG JIANSONG

Inventors

ZHANG JIANSONG

Priority data including date

2015CN-0066946 2015-02-10

IPC - International classification

A63B-031/12*

Family[CN105983214](#)

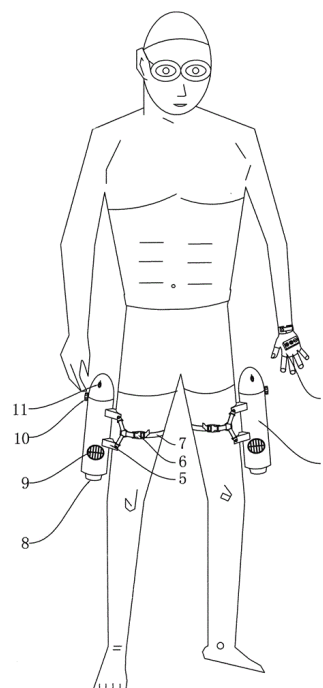
A

2016-10-05



(CN105983214)

The invention relates to a **wearable** swimming propelling device. The **wearable** swimming propelling device is of a wear structure formed by two propellers through brackets, ligatures and shuttle buckles and can be bound to the outer sides of left and right legs, and a remote controller and a **glove** are combined to form a remote control **glove** to be worn on a **hand**; electric control units, storage batteries, electric motors, impellers and guide vanes are sequentially mounted in propeller shells, and stream flow is sucked in from the side surfaces and is jetted out through tails so as to generate propulsive force to a human body in a hands-free manner. When the propulsive force needs to be strengthened or the time of endurance needs to be prolonged, the power of the electric motors, the sizes of the impellers and the guide vanes and the capacities of the storage batteries need to be increased, the storage batteries and the electronic control units can be separated from the propellers to form a power box, and the power box is connected with propellers and a handheld controller through cables to realize power supply and control and is bound to the waist through a waistband and a shuttle buckle structure.



WEARABLE Wireless Controller **US8306673 B1**

Current assignees

MANNING DOUG
MANNING LLOYD DOUGLAS

Inventors

MANNING LLOYD DOUGLAS

Priority data including date

2007US-60912940 2007-04-20
2008US-12106323 2008-04-20
2010US-61347423 2010-05-23
2011US-13114028 2011-05-23
2012US-13652424 2012-10-15
2015US-14740220 2015-06-15
2017US-15470861 2017-03-27

IPC - International classification

B62M-006/00	G05D-001/00	G06F-003/01
G06F-017/00	G06F-017/30	G06K-009/00
G06K-009/32	G08B-003/10	G08C-017/02
G08C-019/16*	G10L-015/22	H04M-001/00
H04R-001/02	H04R-001/10*	H04R-003/00
H04W-084/18		

CPC - Cooperative classification

A63C-017/01	A63C-017/12	A63C-2203/22
B63B-022/00	B63B-035/79/43	B63B-045/00
B63B-045/04	B63B-2022/006	B63C-2009/0088
B63H-011/12	B63H-021/21	B63H-2021/216
B63H-2025/028	G01C-013/00/2*	G06F-001/16/3
G06F-003/01/4	G06F-017/30/256	G06K-009/00/671
G06K-009/32/33	G08B-003/10	G08C-017/02*
G08C-2201/93	G10L-015/22	H04Q-009/00
H04Q-2209/40	H04R-001/02/1	H04R-001/10/91*
H04R-003/00	H04R-2499/11	H04W-084/18*

PCL - US patent classification

PCLO: 701001000*

PCLX: 280087041 701021000 701022000
701031400 701031500 701412000

Family

[US8306673](#)

B1 2012-11-06



[US9607506](#)

B1 2017-03-28



[US9060385](#)

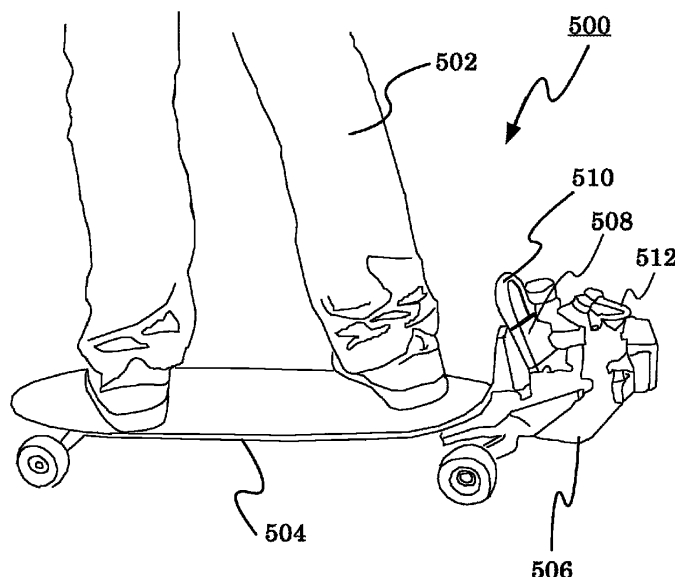
B1 2015-06-16

[US2017280228](#)

A1 2017-09-28

(US9607506)

The present invention relates to a **wearable** universal wireless controller configured to generate control signals for controlling a plurality of devices without the need for hardware or software modification. Such controller comprises a plurality of stretch sensors and switch sensors associated with at least one **glove** or similar structure configured for being associated with a users' **hand**. The controller detects finger and **hand** movements and generates the appropriate communication signal based on values contained in a configuration table. The same wireless controller can control a plurality of devices without the need for reprogramming or mode selections.



Method and apparatus for writing form training US20140322679 A1

Current assignees

DEVINE-BAILLARGEON AIDAN

Inventors

DEVINE-BAILLARGEON AIDAN

Priority data including date

2013US-61816934 2013-04-29

2014US-14263458 2014-04-28

IPC - International classification

G09B-011/02*

CPC - Cooperative classification

G09B-011/02*

PCL - US patent classification

PCLO: 434166000*

Family

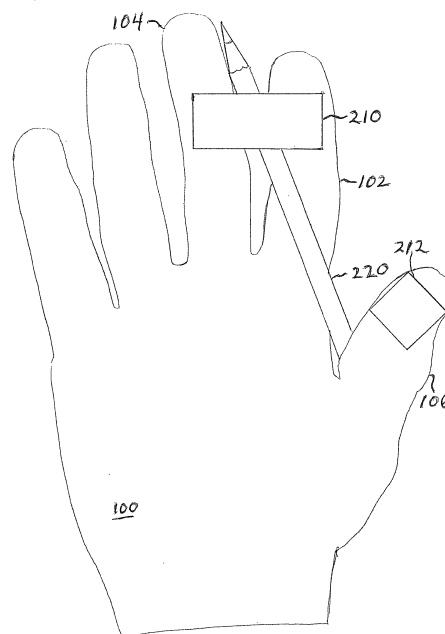
[US2014322679](#)

A1 2014-10-30



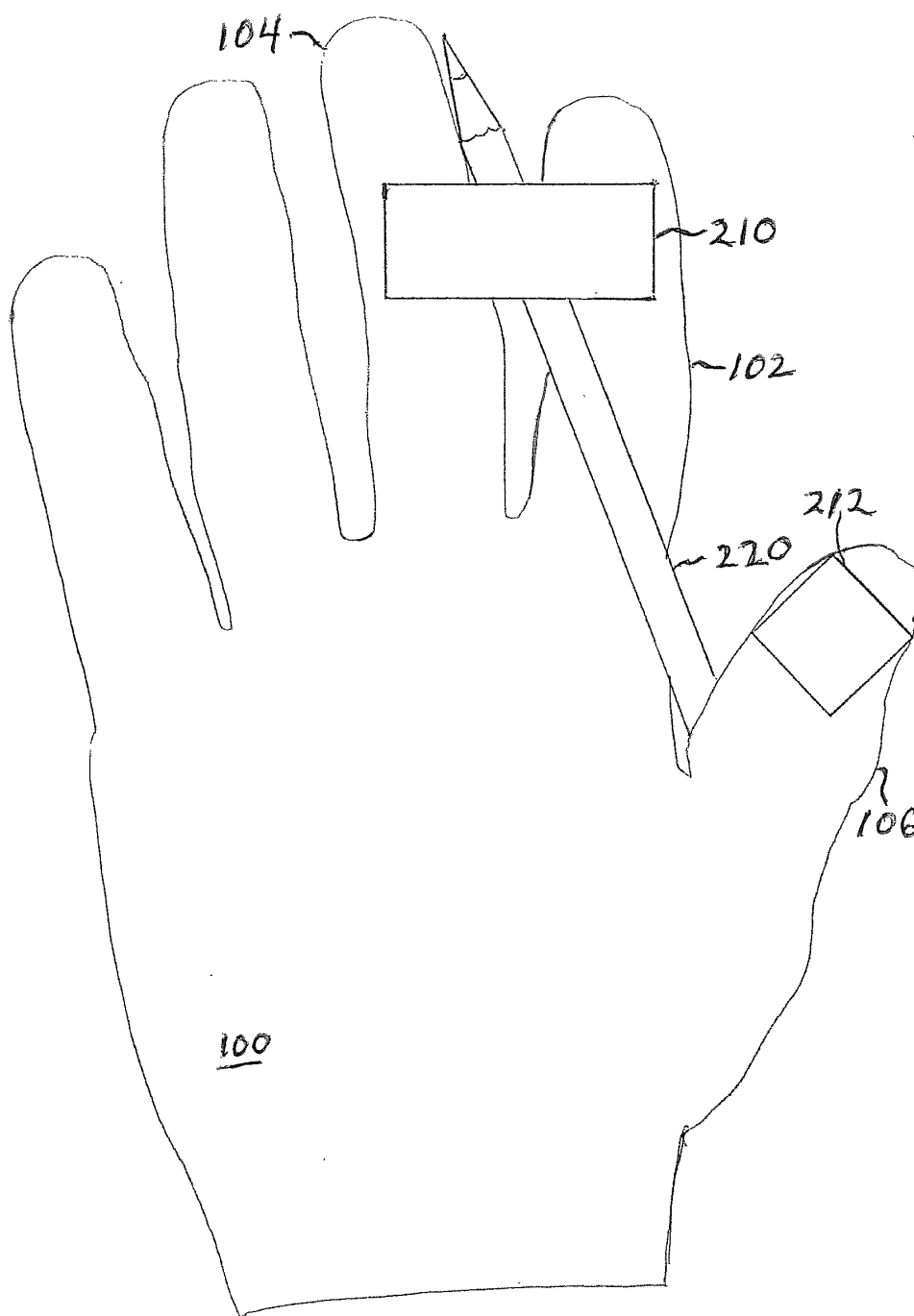
(US20140322679)

An apparatus and method for training writing position can be implemented in the form of a **glove** with fasteners that secure a thumb, forefinger and middle finger together in a desired writing grip position. A protrusion can be applied to an outer lateral portion of the user's writing **hand** between a pinky finger and a **wrist** area, which can be mounted on a **glove** worn by the user, to prop up the writing **hand** of the user at a desired angle for writing. The protrusion can be implemented in the form of a ball that is fastened to the outer lateral portion of the **glove** worn on the writer's **hand**. The **glove** can be configured to be customized for a given user, such as by selecting a desired **glove** size, fastener position and/or position of a protrusion on the outer lateral portion of the **glove** between the pinky finger and the **wrist**. The **glove** is potentially useful for training a desired writing position of the user's writing **hand** as may be helpful in overcoming some of the challenges related to dysgraphia.



Title

Method and apparatus for writing form training

Images**Publication data including kind & date**[US2014322679](#)

A1 2014-10-30

US20140322679

**Publication dates**

2014-10-30

Abstract

(US20140322679)

An apparatus and method for training writing position can be implemented in the form of a **glove** with fasteners that secure a thumb, forefinger and middle finger together in a desired writing grip position. A protrusion can be applied to an outer lateral portion of the user's writing **hand** between a pinky finger and a **wrist** area, which can be mounted on a **glove** worn by the user, to prop up the writing **hand** of the user at a desired angle for writing. The protrusion can be implemented in the

Hand worn illuminated framework US20060109645 A1

Current assignees

FERRARI JOHN S
SOMMERS DALE C

Inventors

FERRARI JOHN S
SOMMERS DALE C

Priority data including date

2004US-10993871 2004-11-22

IPC - International classification

F21V-021/08*

CPC - Cooperative classification

A41D-019/015/7* G08B-005/00/4 Y10S-362/80

PCL - US patent classification

PCLO: 362103000*

PCLX: 002159000 002160000 362234000
362800000

Family

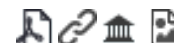
[US2006109645](#)

A1 2006-05-25



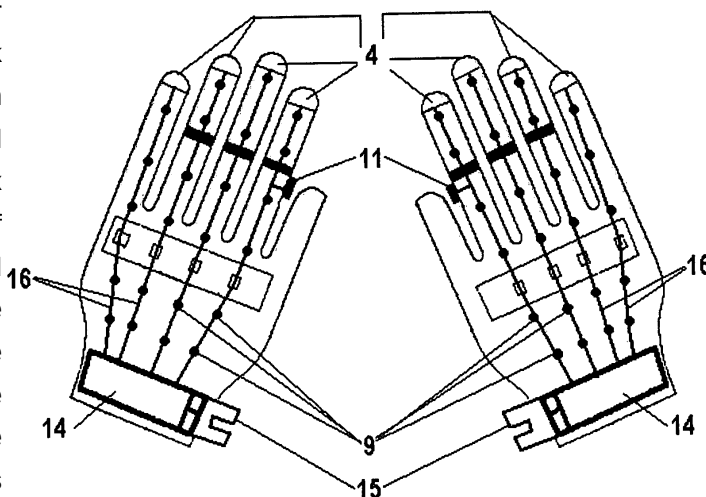
[US7163308](#)

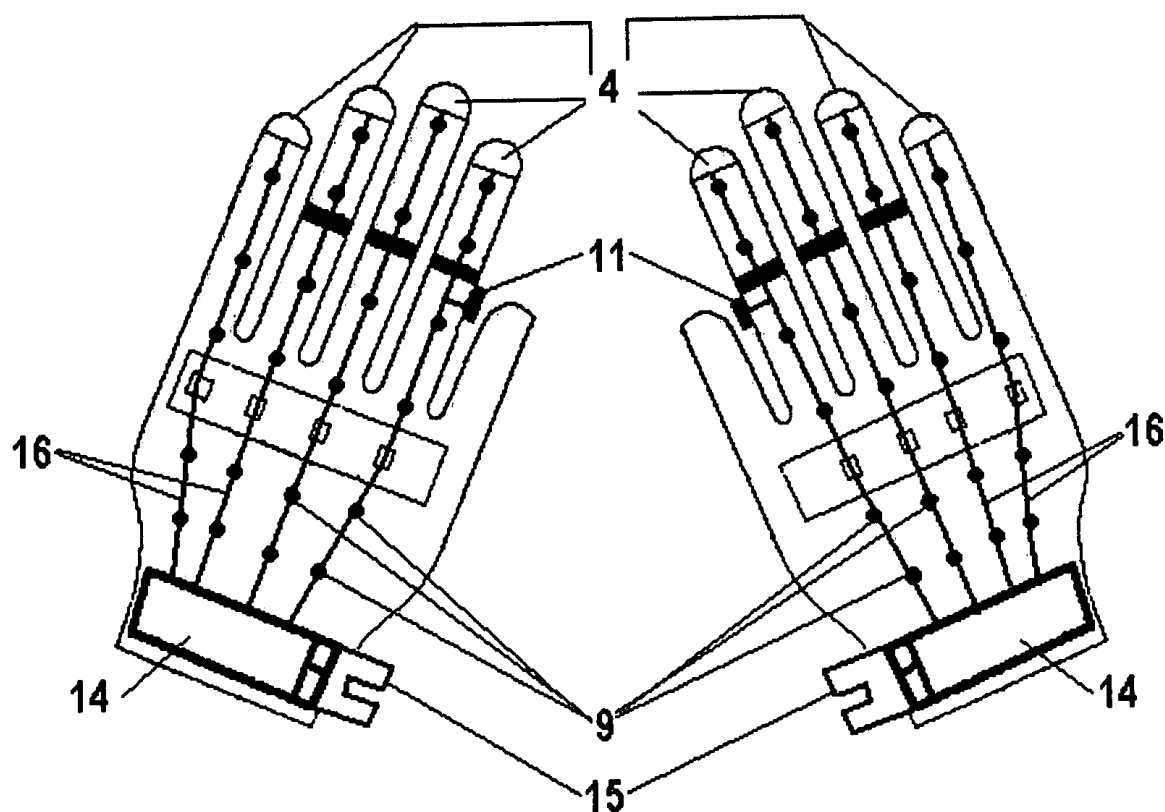
B2 2007-01-16



(US7163308)

For **hand** signal enhancement, a reversible, flexible illuminated framework, for wearing upon the human **hand** or over gloves. Emanating from a **wrist** cuff, the framework comprises four or more rope light type LED illumination elements, that provide constant on, flashing, or sequential illumination, a battery pack upon the **wrist** cuff, an index finger mounted switch unit; the rope light is capable of various color illumination through use of waterproofed colored or clear translucent sheaths, the light elements are connected together with a web strap midway along the length of the light elements; fabric fingertip caps terminate the light elements and hold the light elements inline with the fingers of the **hand**; a Velcro band upon the light elements at the first finger joint of the index and the ring fingers keeps the lighting elements from rotating upon the fingers during use.



Title**Hand** worn illuminated framework**Images****Publication data including kind & date**[US2006109645](#)

A1 2006-05-25

US20060109645

[US7163308](#)

B2 2007-01-16

US7163308

**Publication dates**

2006-05-25

2007-01-16

Abstract

(US7163308)

For **hand** signal enhancement, a reversible, flexible illuminated framework, for wearing upon the human **hand** or over gloves. Emanating from a **wrist** cuff, the framework comprises four or more rope light type LED illumination elements, that provide constant on, flashing, or sequential illumination, a battery pack upon the **wrist** cuff, an index finger mounted switch unit; the rope light is capable of various color illumination through use of waterproofed colored or clear translucent sheaths, the light elements are connected together with a web strap midway along the length of the light elements; fabric fingertip caps terminate the light elements and hold the light elements inline with the fingers of the **hand**; a Velcro band upon the light elements at the first finger joint of the index and the ring fingers keeps the lighting elements from rotating upon the fingers during use.

Inventors

FERRARI JOHN S

SOMMERS DALE C

Application dates

2004-11-22

Priority numbers

2004US-10993871

Application number

US10/993,871

Tremor stabilisation apparatus and methods

CA2971539 A1

Current assignees

GYROGEAR*

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ONG JOON FAI

GAN BENJAMIN

KOH BENJAMIN

SOLER XAVIER LAGUARTA

CHOONG NGAN LOU WINSTON

Priority data including date

2014GB-0022899 2014-12-22

2015WO-GB54128 2015-12-22

IPC - International classification

A61B-005/00 A61B-005/11 A61F-005/01

A61H-001/00 A61H-023/00 A61H-023/02

A61H-099/00 A61N-001/04 A61N-001/36

A63B-021/00 A63B-021/22* A63B-023/16

A63B-024/00 F16F-007/10 G01C-019/02

G01C-019/42

CPC - Cooperative classification

A61B-005/01 A61B-005/021 A61B-005/024/38

A61B-005/053/1 A61B-005/11/01 A61B-005/11/17

A61B-005/4266 A61B-005/4809 A61B-005/6806

A61B-005/6824 A61B-2562/0219 A61F-005/01/02

A61F-005/01/18 A61H-023/02 A61H-2201/0207

A61H-2201/0271 A61H-2201/1215 A61H-2201/1604

A61H-2201/1635 A61H-2201/164 A61H-2201/165

A61H-2201/1659 A61H-2201/5012 A61H-2201/5084

A61H-2201/5097 A61H-2205/065 A61H-2230/00

A61N-001/04/84 A61N-001/36/067 A63B-021/00/069

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A63B-023/025 A63B-023/04 A63B-023/12

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A63B-2024/0068 A63B-2024/0093 A63B-2071/0072

A63B-2071/0655 A63B-2209/08 A63B-2209/10

A63B-2220/13 A63B-2220/30 A63B-2220/40

A63B-2220/803 A63B-2225/09 A63B-2225/20

A63B-2225/50 F16F-007/10/05 G01C-019/16

G01C-019/42

Family

[CA2971539](#)

A1 2016-06-30

[EP3237081](#)

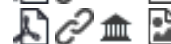
A1 2017-11-01

[WO2016102958](#)

A1 2016-06-30

[CN107405209](#)

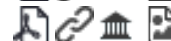
A 2017-11-28

[BR112017013457](#)

A1 2017-07-04

[BR112017013457](#)

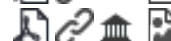
A2 2018-03-06

[AU2015370672](#)

A1 2017-07-13

[JP2018507010](#)

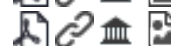
A 2018-03-15

[KR20170106348](#)

A 2017-09-20

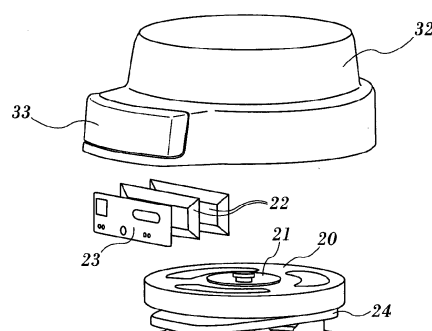
[EA201791441](#)

A1 2018-03-30



(EP3237081)

The present invention relates to improvements in or relating to tremor stabilisation apparatus and methods, in particular to gyroscopic devices for use in controlling tremors of parts of the body, both physiological and pathological, especially the hands. We describe an apparatus for reducing effects of

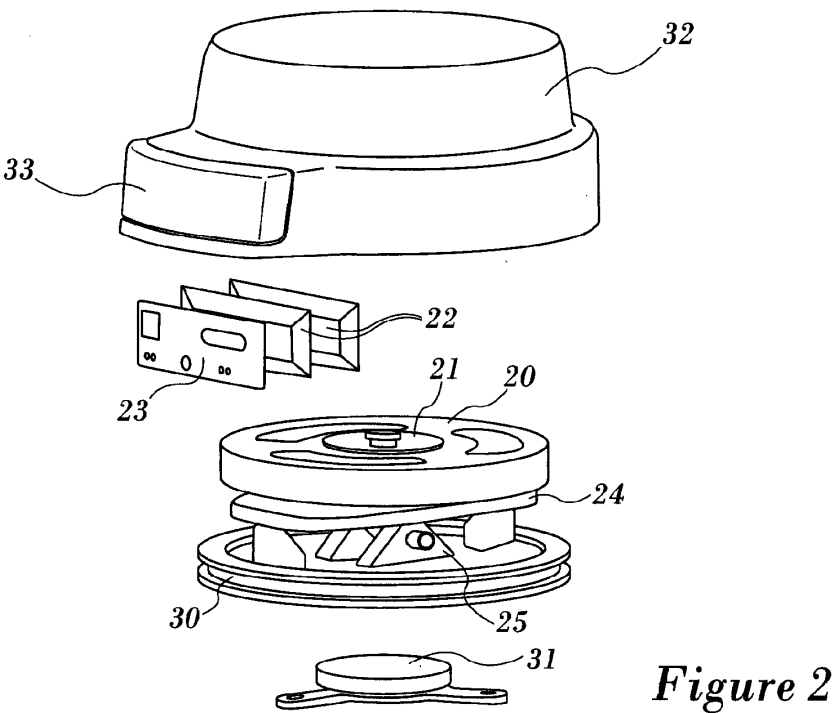


tremors on the human body. The apparatus comprises a **wearable** element and at least one gyroscopic device mounted or mountable to the **wearable** element, the gyroscopic device comprising a gyroscope and a gyroscope housing. The apparatus is characterised in that the at least one gyroscopic device is mounted within the housing by means of a mount which allows the gyroscope to precess with respect to the housing. In one embodiment, the mount comprises a hinge to which the gyroscope is mounted and a hinge plate or hinge mount to which the hinge is mounted for rotation with respect to the gyroscope housing. Preferably the hinge plate or hinge mount comprises a turntable mounted to the gyroscope housing. Preferably, the or each gyroscopic device further comprises a control arrangement to control the precession of the gyroscope.

Title

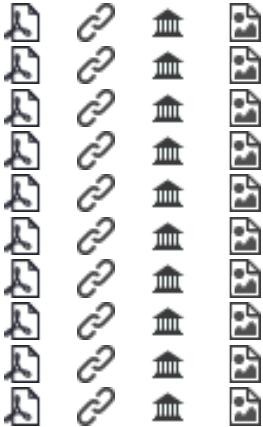
Tremor stabilisation apparatus and methods

Images



Publication data including kind & date

CA2971539	A1	2016-06-30	CA2971539
WO2016102958	A1	2016-06-30	WO2016102958
BR112017013457	A1	2017-07-04	BR112017013457
AU2015370672	A1	2017-07-13	AU2015370672
KR20170106348	A	2017-09-20	KR20170106348
EP3237081	A1	2017-11-01	EP3237081
CN107405209	A	2017-11-28	CN107405209
BR112017013457	A2	2018-03-06	BR112017013457
JP2018507010	A	2018-03-15	JP2018507010
EA201791441	A1	2018-03-30	EA201791441



Publication dates

2016-06-30
2016-06-30
2017-07-04
2017-07-13
2017-09-20
2017-11-01
2017-11-28
2018-03-06
2018-03-15
2018-03-30

When teaching draw case is in use, CN206391365U U

Current assignees

UNIVERSITY PUTIAN*

Inventors

CHEN JIANMIN

FU XIANMING

LIU SHIQI

Priority data including date

2016CN-U666698 2016-06-29

IPC - International classification

A61M-037/00*

Family

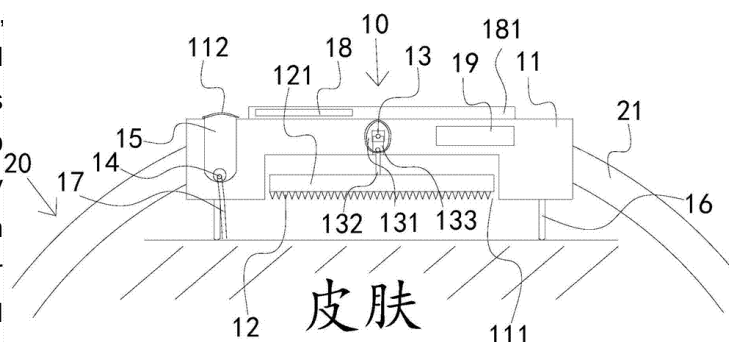
[CN206391365](#)

U 2017-08-11



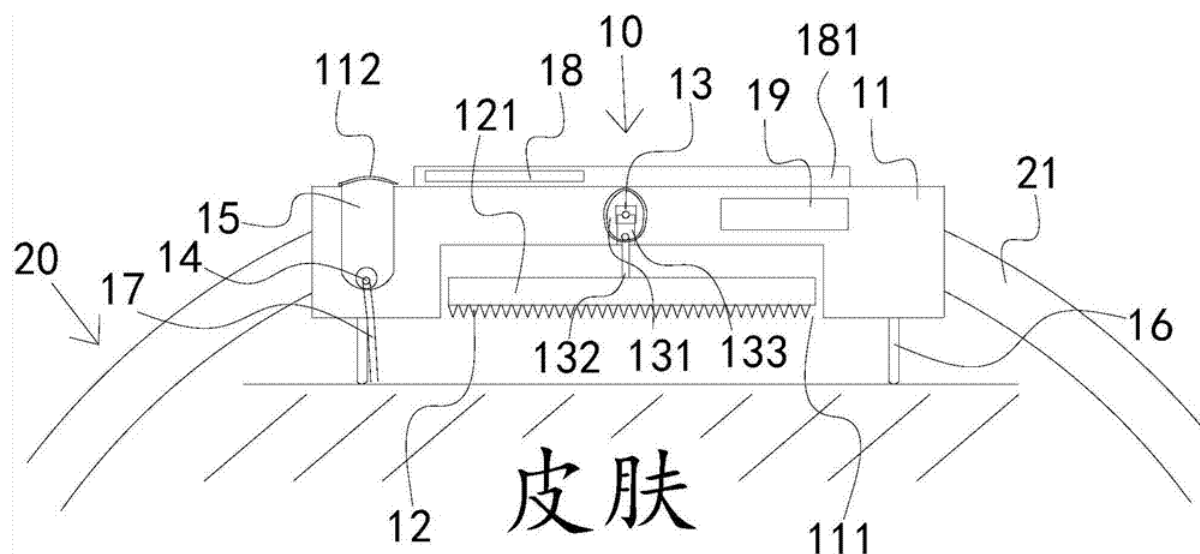
(CN206391365U)

The utility model relates to a when teaching draw case is in use, , dose mechanism and being used for including the micropin and dress the dose wearing mechanism of mechanism of micropin, wearing mechanism is bracelet, **hand** lace, gloves, wherein any one, the micropin is dosed, and the mechanism includes micropin, micro **motor**, micropump, storage medicament pond, dose circle and power, micro **motor** is connected with the micropin, provides the effort that the micropin acted on skin, the micropump links to each other with storage medicament pond for carry the liquid medicine, the circle of dosing contacts with skin and keeps lasting dosing, the power is used for the power supply to give micro **motor**, micropump. The utility model discloses a mode of bracelet, **hand** lace, gloves makes the micropin dose the mechanism and fixes and dose on a position, uses simple and conveniently, the dosage of dosing does not receive the restriction of micropin size, has extended the scope that micropin permeation enhancing used, the intelligence design of dosing can realize the continuation and dose.



Title

When teaching draw case is in use,

Images**Publication data including kind & date**

[CN206391365](#)

U 2017-08-11 CN206391365U

**Publication dates**

2017-08-11

Abstract

(CN206391365U)

The utility model relates to a when teaching draw case is in use, , dose mechanism and being used for including the micropin and dress the dose wearing mechanism of mechanism of micropin, wearing mechanism is bracelet, **hand** lace, gloves, wherein any one, the micropin is dosed, and the mechanism includes micropin, micro **motor**, micropump, storage medicament pond, dose circle and power, micro **motor** is connected with the micropin, provides the effort that the micropin acted on skin, the micropump links to each other with storage medicament pond for carry the liquid medicine, the circle of dosing contacts with skin and keeps lasting dosing, the power is used for the power supply to give micro **motor**, micropump. The utility model discloses a mode of bracelet, **hand** lace, gloves makes the micropin dose the mechanism and fixes and dose on a position, uses simple and conveniently, the dosage of dosing does not receive the restriction of micropin size, has extended the scope that micropin permeation enhancing used, the intelligence design of dosing can realize the continuation and dose.

Inventors

CHEN JIANMIN

FU XIANMING

LIU SHIQI

Latest standardized assignees - inventors removed

UNIVERSITY PUTIAN

Application dates

2016-06-29

Priority numbers

2016CN-U666698

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