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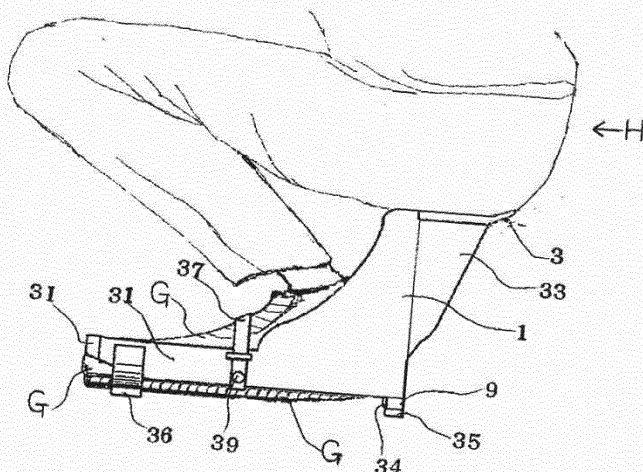
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(54) **SHOE HAVING STOOL FUNCTION**

(57) Although stools for resting the lower back are demanded at the time of outdoor activities such as gardening, and outdoor sports over a long period of time such as fishing, which may require a half-sitting posture, it is difficult and burdensome for a person to always carry with him/her during the outdoor activities. A shoe which the person wears is used itself as a stool. A part of the shoe from a heel part in a rear part to a calf side above the heel part is made of a strong and hard material. A seating part is provided in a top part of the shoe so as to

project horizontally rearward. In addition, a front side of the shoe from an upper part of an instep part to a legging part is opened as an opening part so that a rear part of the shoe where the seating part is provided is not dragged forward when the person squats down, and the lower leg below the knee projects freely forward. Thus, only by squatting down on the shoe anywhere at anytime when the person wants to sit down, the person can sit on the seating part of the shoe.

Fig. 11



Description

TECHNICAL FIELD

[0001] The present invention relates to a stool on which a person can easily sit anywhere at any time during outdoor activities such as gardening and in outdoor sports such as fishing.

BACKGROUND ART

[0002] For outdoor activities such as gardening, various kinds of stools which ease the burden of the lower back have been proposed because a person moves around in a half-sitting posture. Since such a stool is always necessary to be located nearby the person, there are stools which can be attached to the person's body and wheeled stools with which the person can move around while sitting thereon. However, these stools are difficult to be used because they may disturb the person's movements and activities.

REFERENCE DOCUMENT OF CONVENTIONAL ART

Patent Document

[0003] Patent Document 1: JP1999-018880A

DISCLOSURE OF THE INVENTION

PROBLEM TO BE SOLVED BY THE INVENTION

[0004] As for the problems to be solved, when a person stands up from the stool and moves, the person must always act while concentrating on the stool on which the person sat at the time of the activities. Therefore, the stool is inconvenient to be used easily.

SUMMARY OF THE INVENTION

[0005] The present invention is characterized in that a seating part is provided to a shoe itself which a person performing outdoor activities wears to form a stool to be used.

[0006] The invention according to claim 1 adopts a technical means, which is a shoe also usable as a stool, that is a so-called boot-shaped shoe (A), such as a boot or a rain boot. A front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part (D) so that, when the person wears the boot-shaped shoe (A) and squats down, the person's leg below the knee projects forward freely from the front opening part (D) in the upper part the boot shape, and the person can maintain an upright posture similar to a straightly standing posture without dragging forward a rear part of the boot shape. The circumference of the heel (9) and a legging rear part (1) of the boot shape sustaining an upright pos-

ture is made of a hard and strong material, and a seating part (3) is provided in a top part of the boot shape so as to project horizontally rearward, so that, when the person wears the boot-shaped shoe (A) and squats down on the seating part (3), and the person is able to sit on the seating part (3) as a stool as it is.

[0007] The invention according to claim 2 adopts a technical means, which is a shoe (A) also usable as a stool, that is a so-called boot-shaped shoe (A), such as a boot or a rain boot. A front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part (D), a heel (9) and a legging rear part (1) are made of a hard and strong material, and a seating part (3) is provided in a top part of the shoe so as to project horizontally rearward. A lower end part of a tube (15) made of a soft material similar to a tube part in an upper part of a rubber rain boot is provided inside the shoe (A) so that the lower end part continues and seals to/with a circular part (2) of a part of the shoe (A), that opens around the ankle. The part of the shoe (A) is made of a soft material continuing from a tiptoe (10) side of the shoe so that the shoe has a dual structure of a soft part and a hard part to have a waterproof function similar to a rain boot.

[0008] The invention according to claim 3 adopts a technical means, which is a shoe (A) also usable as a stool, that is a so-called boot-shaped shoe (A), such as a boot or a rain boot. A front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part (D), a heel (9) and a legging rear part (1) is made of a hard and strong material, and a seating part (3) is provided in a top part of the shoe so as to project horizontally rearward. An integral rear overlapping part (20) is provided, the rear overlapping part being a thin plate made of a lightweight and strong material, such as an aluminum alloy, that can cover from the rear part (1) of the shoe from a sole part (11) below the heel in a rear part of the shoe (A) to the seating part (3) above the sole part so that the rear overlapping part (20) conforms to the shape of the rear part of the shoe (1), the rear overlapping part is provided so as to be unseparably slidable from the shoe (A) horizontally in a front-to-rear direction, and, when the rear overlapping part (20) is pulled rearward to slide, a top part of the rear overlapping part (20) becomes a second seating part (21) continuing to the seating part (3) to expand a usable seating surface.

[0009] The invention according to claim 4 adopts a technical means, which is a shoe (A) also usable as a stool, that is a so-called boot-shaped shoe (A), such as a boot or a rain boot. A front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part (D), a heel (9) and a legging rear part (1) is made of a hard and strong material, and a seating part (3) is provided in a top part of the shoe so as to project horizontally rearward. A sole part of the shoe (A) is entirely or majorly opened, a part of the shoe (A) from an instep part to an

upper front part on a tiptoe side is opened as well penetrating therethrough in a vertical direction without providing anything, and a fastener (37), such as a belt or a shoelace is provided to hold the instep by hooking to the sides of the shoe (A) so that the person can wear the shoe integrally after hooking the fastener (37).

[0010] The invention according to claim 5 adopts a technical means, which is a shoe (A) also usable as a stool, that is a so-called boot-shaped shoe (A), such as a boot or a rain boot. A front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part (D), a heel (9) and a legging rear part (1) are made of a hard and strong material, and a seating part (3) is provided in a top part of the shoe so as to project horizontally rearward. A bar-shaped leg part (41) is fixedly provided in a vertical direction to a lower surface of the seating part (3) provided in a rear part of the top part of the shoe (A) so that a lower end part of the leg part touches the ground surface behind the heel (9) of the shoe to increase stability at the time of sitting on the seating part (3), the integrally-fixed seating part (3) and leg part (41) are vertically slidable for several centimeters at a rear part of the shoe (A) along a rear part of the shoe (A), and the integrally-fixed seating part and leg part are constantly held after sliding upwardly by a shape memory member (43), such as rubber and a spring, so that a lower end part of the leg part (41) is pulled up from the ground surface to help the person's walking except when the person is sitting on the shoe as a stool.

EFFECT OF THE INVENTION

[0011] The shoe of the present invention can also be used as a stool by being provided with the seating part has an advantage that the person can easily sit down only by squatting down anywhere at anytime during the outdoor activities which require standing up or moving, even if the person acts without being conscious of the stool in particular.

BRIEF DESCRIPTION OF DRAWINGS

[0012]

Fig. 1 is a side view of claim 1.
 Fig. 2 is a plan view of claim 1.
 Fig. 3 is a front view of claim 1.
 Fig. 4 is a cross-sectional view of the side of claim 1.
 Fig. 5 is a cross-sectional view of the side of claim 2.
 Fig. 6 is a side view of claim 3 and is one embodiment in which a rear overlapping part pulled rearward to be slid.
 Fig. 7 is a side view of claim 4.
 Fig. 8 is a rear view of claim 4.
 Fig. 9 is a plan view of claim 4.
 Fig. 10 is a bottom view of claim 4.
 Fig. 11 is a side view of claim 4 and is a view of one

embodiment in which another arbitrary shoe is inserted into the shoe of claim 4, a person wears the shoe, and sits thereon.

Fig. 12 is a perspective view of claim 5 and is a view of one embodiment in which a seating part of claim 5 is lowered to the lowermost position.

Fig. 13 is a perspective view of claim 5, and is a view of one embodiment in which a seating part of claim 5 is elevated to the uppermost position.

MODES FOR CARRYING OUT THE INVENTION

[0013] A seating part is provided in an upper part of a shoe itself which a person wears and is required for outdoor activities to achieve that the person can easily sit on the shoe anywhere at any time only by squatting down on the shoe.

Embodiment 1

[0014] Figs. 1 to 4 illustrate one embodiment of claim 1 of the present invention and is a so-called boot-shaped shoe (A) such as a boot or a rain boot. The shoe (A) is configured so that the entire shoe (A) is substantially divided in half at the arch of the foot in a front-to-rear direction. A tiptoe part (10) side of the shoe is made of a material such as a soft rubber, and a heel part (9) side and a legging part (8) side above the heel part are made of a hard and strong material. An upper front part extending from an upper part of an instep part (7) to the shin is entirely opened as an opening part (D). Thus, when the person wears the shoe (A) and squats down, his/her leg under the knee freely projects forward from the front-side opening part (D) in the upper part of the boot shape. Therefore, the person can sustain his/her upright posture similar to the standing posture, without dragging the rear part of the boot shape forward together.

[0015] In addition, a top part of the hard and strong legging part (8) on the calf side is provided with a seating part (3) so as to project horizontally rearward. Therefore, when the person squats down while wearing the shoe (A), he/she can sit on the seating part (3) as a stool as it is.

[0016] Alternatively, when the person performs activities while wearing the shoe (A) in a case where soil or the like may enter into the shoe (A), the person can wear another arbitrary shoe with a low heel and then wear a larger size shoe (A).

Embodiment 2

[0017] An embodiment of Fig. 5 is a so-called boot-shaped shoe (A) such as a boot or a rain boot according to claim 2. The entire front side of an upper part where a leg part from an instep part (7) to the shin contacts is opened as an opening part (D). A rear part where a heel part (9) and the calf in the lower leg rear part contact is made of a hard and strong material, and a top part is provided with a seating part (3) projecting horizontally

rearward, to form the shoe (A) which can also be used as a stool. Inside the hard upper part of the shoe, a substantially cylindrical tube made of a soft material similar to that of a cylindrical upper part of a rubber rain boot is provided so that it continues from a lower circular part for inserting a foot which opens around the ankle. The lower circular part continues from the tiptoe side, inside of the rear part, of the boot-shaped shoe (A) made of the hard and strong material, and is fluid-tightly formed with the substantially cylindrical tube. Thus, the soft tube for inserting the leg is additionally provided as a shank part (15) inside the upper part of the shoe (A) to have a double structure in which the boot-shaped part having a hard seating part (3) is disposed outwardly and rearwardly. Therefore, it has a waterproof function similar to rain boots.

Embodiment 3

[0018] An embodiment of Fig. 6 is a so-called boot-shaped shoe (A) such as a boot or a rain boot according to claim 3. The entire front side of an upper part of the shoe where a part extending from the instep part (7) to the shin contacts is opened as an opening part (D). A rear part where the heel part (9) and the calf in the lower leg rear part contact is made of a hard and strong material. The shoe (A) can also be used as a stool, which is provided with a seating part (3) projecting horizontally rearward in a top part thereof. An integral rear overlapping part (20) is formed by a thin plate made of a lightweight and strong material such as an aluminum alloy, which can cover from the rear part of the shoe (A) from a sole part (11) below the heel part (9) in the rear part of the shoe (A) to the seating part (3) in the upper part of the shoe (A) so that it conforms to the shape of the shoe part. The rear overlapping part (20) is integrally provided to the shoe so that it horizontally slides rearward in a front-to-rear direction. Particularly, the upper part of the rear overlapping part (20) has the same shape as the seating part (3) located in the top part of the shoe (A) and covers the seating part (3) from the rear. Thus, when the rear overlapping part (20) is pulled rearward to slide, since the top part of the rear overlapping part (20) also functions as a second seating part (21) continuing from the seating part (3), a wider seating surface can be obtained.

[0019] Figs. 7 to 11 illustrate an embodiment of claim 4, and is a so-called boot-shaped shoe (A) such as a boot or a rain boot, and the shoe (A) includes a heel part (9) in a rear part of the shoe (A). A rear part of the shoe (A) on the calf side above the heel part (9) is made of a hard and strong material, and the shoe (A) can also be used as a stool, provided with a seating part (3) projecting horizontally rearward in a top part of the shoe (A). An edge surrounding part (31) is provided in the circumference of a lower part of the shoe (A) where a part of the foot from the heel to the sides of the tiptoe and the like contacts, and the edge surrounding part (31) is formed

of a plate member made of resin or the like which is hard yet has some flexibility. A tiptoe side of the edge surrounding part (31) is formed with a tiptoe-side opening part (F) which is a notch in the surrounding part. In addition, a sole part (11) of the shoe is provided with nothing except for a tiptoe-side sole rubber part (36) near the toe root part, and a heel-side sole rubber part (35). A part of the shoe (A) where the shin contacts, from a front side of the shank part (15) to an upper part of the instep and tiptoe side is entirely opened, and the sole part of the shoe is penetrated therethrough in the vertical direction.

[0020] In addition, the edge surrounding part (31) is also provided with a rubber belt (37) which is a fastener serving as a shoelace, and latch parts (39) on both the outside side faces where the ends of the rubber belt (37) are hooked and locked. Then, after inserting to fit another arbitrary shoe (G) having a sole into the shoe (A) described above from the top or bottom of the shoe (A), the rubber belt (37) provided to the edge surrounding part (31) on the side faces of the instep is placed from above and latched so that the person can wear the shoe (G) integrally with the shoe (A). In addition, if the size of the another arbitrary shoe (G) to be inserted is somewhat large, it can be inserted while expanding the tiptoe-side opening part (F) of the shoe (A) outwardly. The another arbitrary shoe (G) can be freely pulled out to separate from the shoe (A) by removing the rubber belt (37) as the fastener.

[0021] The tiptoe-side sole rubber part (36) is slightly provided near the toe root part because of the following reasons: by stepping to press down the tiptoe-side sole rubber part (36) by the tiptoe side of the another arbitrary shoe (G), the rubber belt (37) which contacts the upper side of the instep part of the another arbitrary shoe (G) becomes a fulcrum to raise the heel side of the shoe (A) without falling so that the person can walk easily; and when the person sits on the seating part (3), the front side of the shoe (A) will not be raised to incline. Note that the tiptoe-side sole rubber part (36) which is slightly provided near the toe root part may be replaced with a string, such as a wire, in order to acquire the same effects.

[0022] Further, the projecting direction to the rear of the seating part (3) provided in the rear top part on the heel side of the shoe (A) is slightly outward (not straightly rearward), to the right and rear for the right foot and to the left and rear for the left foot, respectively. This is to reduce a chance of contact between the left and right seating parts (3) projecting rearward when the person brings his/her feet together to mutually contact the heel parts (9) and spread the tiptoes in an inverted "HA" katakana character shape.

[0023] Figs. 12 and 13 illustrate an embodiment of claim 5, and is a so-called boot-shaped shoe (A) such as a boot or a rain boot. A front side of an upper part of the shoe where a part from the instep part (7) of the foot to the shin contacts is entirely opened as an opening part (D). A rear part of the shoe (A) where the heel part (9) and the calf in the lower leg rear part contact is made of

a hard and strong material, and a seating part (3) is provided in the top part of the shoe (A) projecting horizontally rearward so that the shoe (A) can also be used as a stool. A leg part (41) of a bar shape is vertically fixed to the lower surface of the seating part (3) of the shoe (A), and a lower end part thereof touches the ground surface behind the heel part (9) of the shoe. Thus, when a person sits on the seating part (3), his/her weight acting rearwardly is supported by the leg part to increase stability. The leg part (41) integrally fixed to the seating part (3) is inserted into two guide holes (42) formed in the rear part of the shoe (A) at an upper location and a lower location thereof so that the leg part (41) is vertically slidable. The leg part (41) is able to move vertically within a range of about several centimeters along the rear part of the shoe (A). When the person sits on the shoe as a stool, the leg part (41) is lowered by the person's weight to the lowermost position to be in a state where the lower end part of the leg part (41) touches the ground; however, the lower end part of the leg part (41) is otherwise pulled up from the ground surface when the person is not sitting on the shoe so that he/she can walk easily. In order to achieve these states, the shoe which can also be used as a stool is characterized by providing a push spring (43), which is a shape memory member, for sliding the leg part (41) to be held at the uppermost position at all time. Fig. 12 illustrates an example in which the leg part (41) is lowered to the lowermost position, and Fig. 13 illustrates an example in which the leg part (41) is elevated to the uppermost position.

INDUSTRIAL APPLICABILITY

[0024] In the present situation where aged population has been increasing, middle-aged and elderly people need to play active roles also in the outdoor activities. However, in order to reduce the burdens of activities as much as possible, the shoes have such an effect that the person can rest his/her lower back anywhere at any time during the activities. In addition, since the shoes can also be utilized in outdoor sports over a long period of time, such as fishing, the shoes can be expected as future demanded industrial products.

DESCRIPTION OF REFERENCE NUMERALS

[0025]

- 1: Hard and Strong Part from Heel Part Side to Legging Part Side above Heel Part Side
- 2: Soft Part Continuing from Tiptoe Side
- 3: Seating Part
- 7: Instep Part
- 8: Legging Part
- 9: Heel Part
- 10: Tiptoe Part
- 11: Sole Part
- 15: Cylindrical Shank Part

- 20: Rear Overlapping Part
- 21: Second Seating Part
- 22: Slide Shaft
- 23: Slide Shaft Stopper
- 31: Edge Surrounding Part
- 32: Extended Part from Tiptoe Side Sole to Edge Surrounding Part
- 33: Seating Part Pillar Plate Part
- 34: Heel Reinforcement and Heel Contact Part of Another Arbitrary Shoe
- 35: Heel Part Side Sole Rubber Part
- 36: Tiptoe Side Sole Rubber Part
- 37: Rubber Belt for Fastener
- 38: Rubber Belt Inserting Part
- 39: Rubber Belt Latch Part
- 41: Leg Part
- 42: Guide Plate Formed with Guide Hole
- 43: Spring of Shape Memory Member
- 44: Pin for Stopping Spring of Shape Memory Member
- A: Shoe also Usable as Stool
- D: Front Opening Part
- F: Tiptoe-Side Opening Part
- G: Another Arbitrary Shoe
- H: Person

Claims

1. A shoe also usable as a stool, that is a so-called boot-shaped shoe, such as a boot or a rain boot, wherein a front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part so that, when the person wears the boot-shaped shoe and squats down, the person's leg below the knee projects forward freely from the front opening part in the upper part of the boot shape, and the person can maintain an upright posture similar to a straightly standing posture without dragging forward a rear part of the boot shape, and wherein a circumference of the heel and a legging rear part of the boot shape sustaining an upright posture is made of a hard and strong material, and a seating part is provided in a top part of the boot shape so as to project horizontally rearward, so that, when the person wears the boot-shaped shoe and squats down on the seating part, and the person is able to sit on the seating part as a stool as it is.
2. A shoe also usable as a stool, that is a so-called boot-shaped shoe, such as a boot or a rain boot, wherein a front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part, a heel and a legging rear part are made of a hard and strong material, and a seating part is provided in a top part of the shoe so as to project hori-

zonally rearward, **characterized in that:**

a lower end part of a tube made of a soft material similar to a tube part in an upper part of a rubber rain boot is provided inside the shoe so that the lower end part continues and seals to/with a circular part of the shoe, that opens around the ankle, wherein the part of the shoe is made of a soft material continuing from a tiptoe side of the shoe so that the shoe has a dual structure of a soft part and a hard part to have a waterproof function similar to a rain boot.

3. A shoe also usable as a stool, that is a so-called boot-shaped shoe, such as a boot or a rain boot, wherein a front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part, a heel and a legging rear part is made of a hard and strong material, and a seating part is provided in a top part of the shoe so as to project horizontally rearward, **characterized in that:**

an integral rear overlapping part is provided, the rear overlapping part being a thin plate made of a lightweight and strong material, such as an aluminum alloy, that can cover from the rear part of the shoe from a sole part below the heel in a rear part of the shoe to the seating part above the sole part so that the rear overlapping part conforms to the shape of the rear part of the shoe, the rear overlapping part is provided so as to be unseparably slidable from the shoe horizontally in a front-to-rear direction, and, when the rear overlapping part is pulled rearward to slide, a top part of the rear overlapping part becomes a second seating part continuing to the seating part to expand a usable seating surface.

4. A shoe also usable as a stool, that is a so-called boot-shaped shoe, such as a boot or a rain boot, wherein a front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part, a heel and a legging rear part is made of a hard and strong material, and a seating part is provided in a top part of the shoe so as to project horizontally rearward, **characterized in that:**

a sole part of the shoe is entirely or majorly opened, a part of the shoe from an instep part to an upper front part on a tiptoe side is opened as well penetrating therethrough in a vertical direction without providing anything, and a fastener, such as a belt or a shoelace is provided to hold the instep by hooking to the sides of the shoe so that the person can wear the shoe in-

tegrally after hooking the fastener.

5. A shoe also usable as a stool, that is a so-called boot-shaped shoe, such as a boot or a rain boot, wherein a front side of an upper part of the shoe where a person's part from above the instep to the lower leg contacts is entirely opened as an opening part, a heel and a legging rear part are made of a hard and strong material, and a seating part is provided in a top part of the shoe so as to project horizontally rearward, **characterized in that:**

a bar-shaped leg part is fixedly provided in a vertical direction to a lower surface of the seating part provided in a rear part of the top part of the shoe so that a lower end part of the leg part touches the ground surface behind the heel of the shoe to increase stability at the time of sitting on the seating part, the integrally-fixed seating part and leg part are vertically slidable for several centimeters at a rear part of the shoe along a rear part of the shoe, and the integrally-fixed seating part and leg part are constantly held after sliding upwardly by a shape memory member, such as rubber and a spring, so that a lower end part of the leg part is pulled up from the ground surface to help the person's walking except when the person is sitting on the shoe as a stool.

Fig. 1

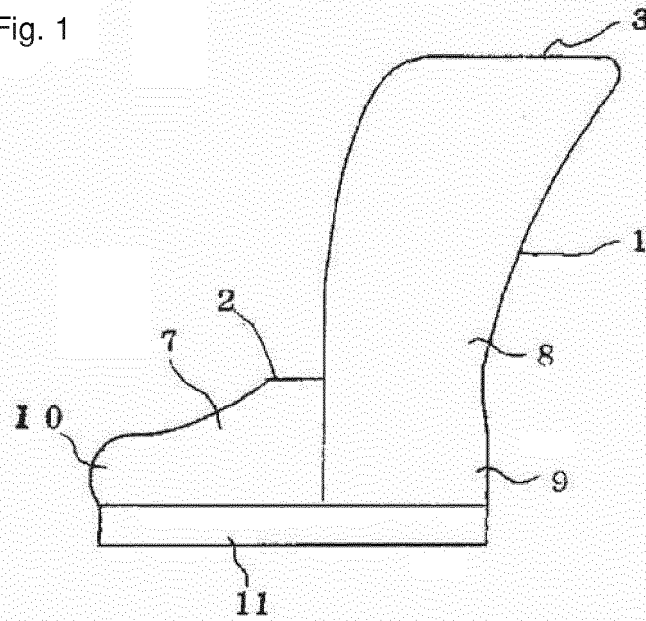


Fig. 2

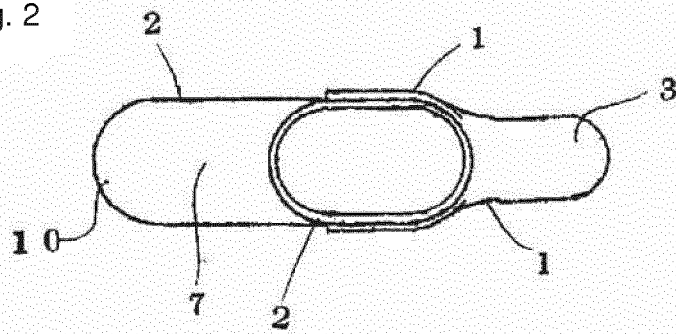


Fig. 3

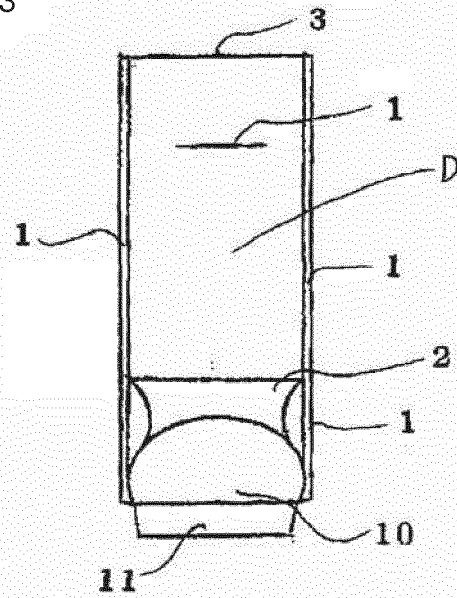


Fig. 4

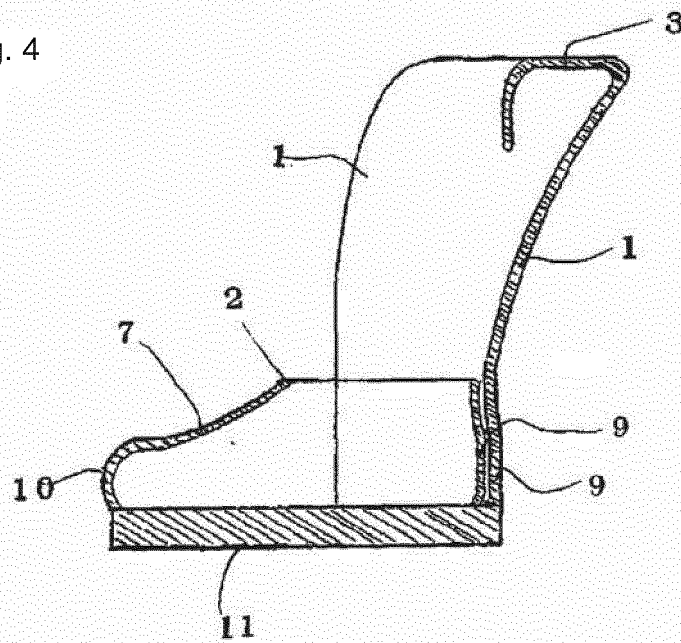


Fig. 5

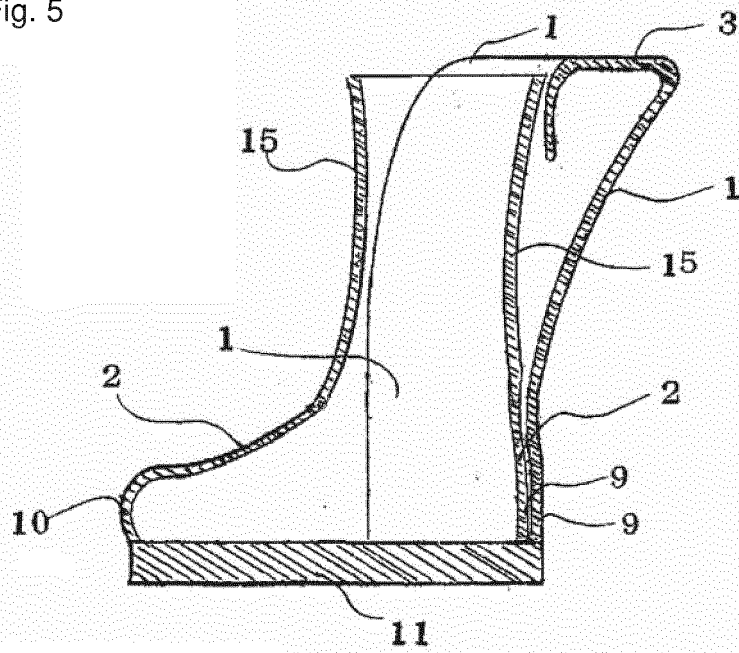


Fig. 6

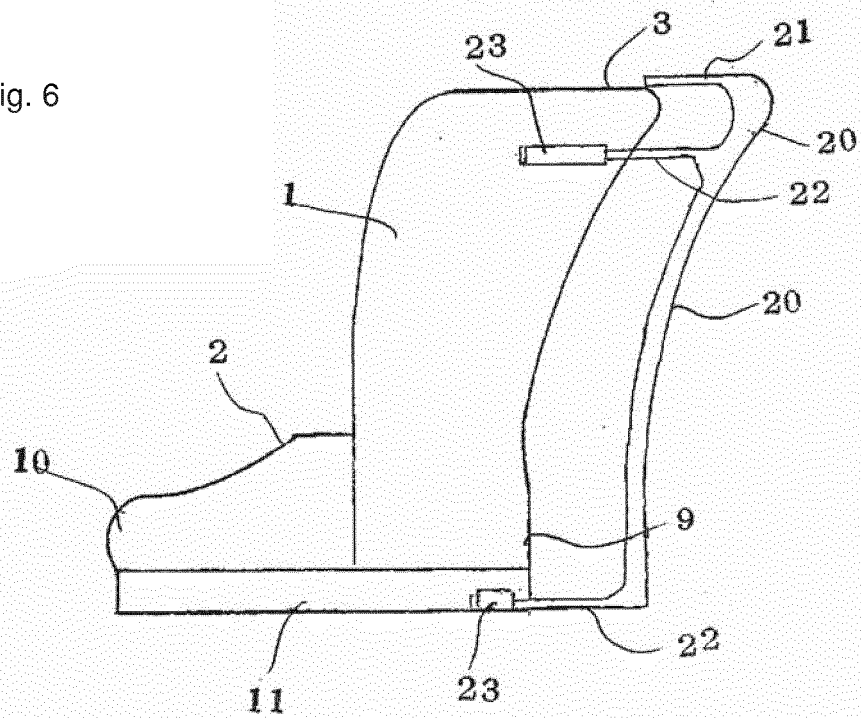


Fig. 7

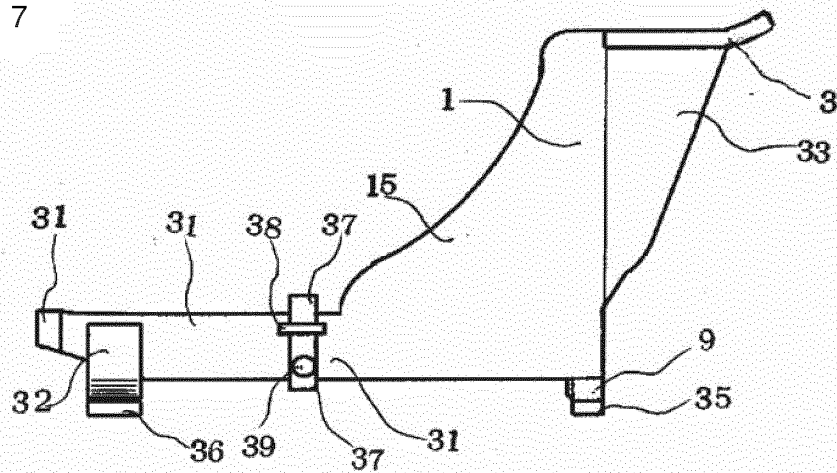


Fig. 8

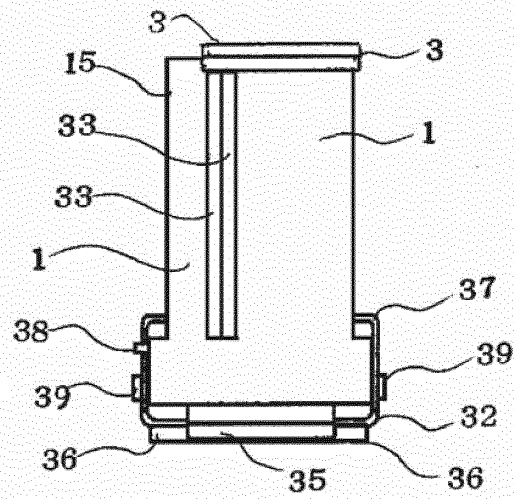


Fig. 9

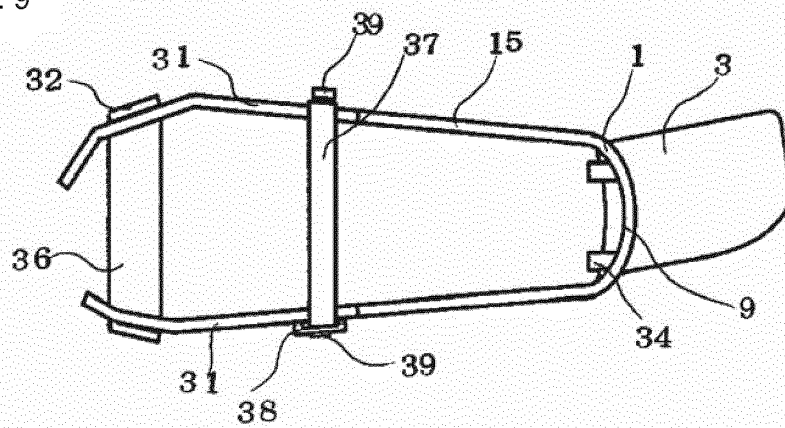


Fig. 10

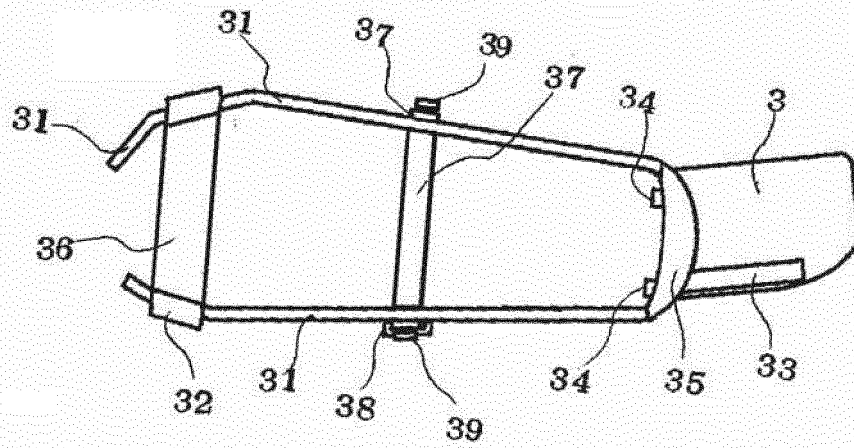


Fig. 11

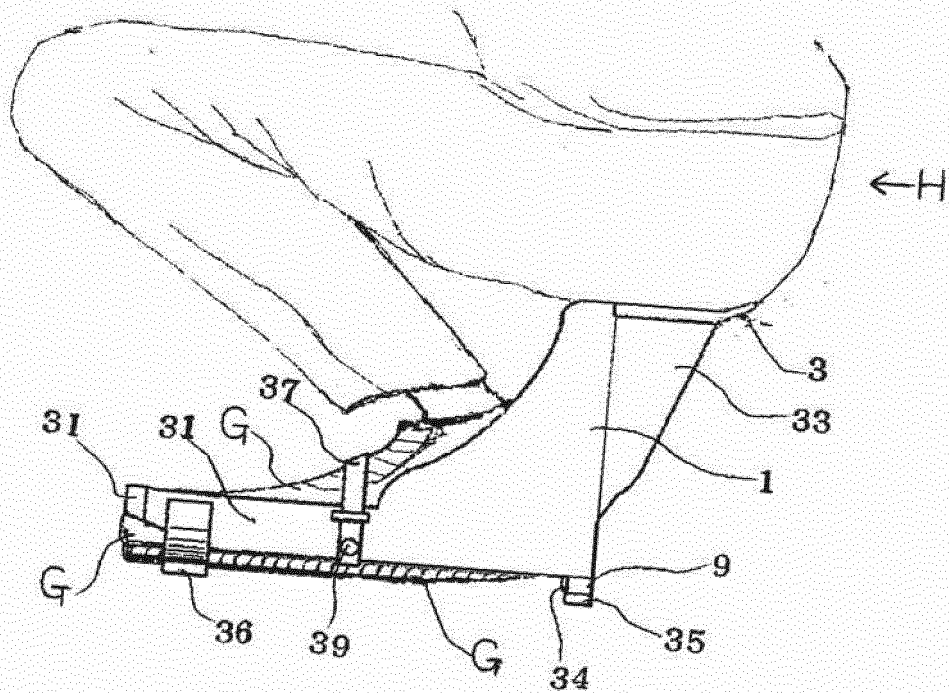


Fig. 12

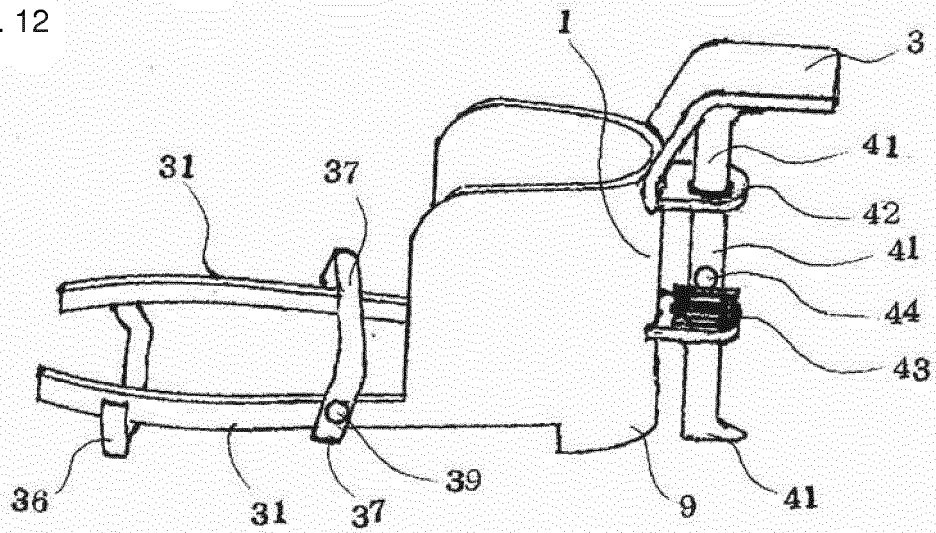
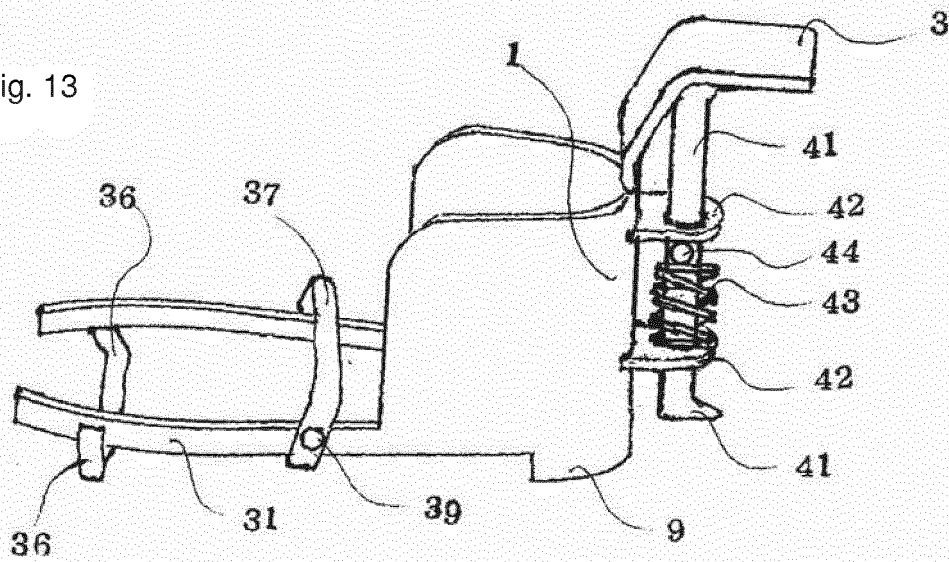


Fig. 13



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2012/061883

A. CLASSIFICATION OF SUBJECT MATTER

A43B23/02(2006.01) i, A43B3/02(2006.01) i, A43B3/16(2006.01) i, A43C15/04(2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A43B1/00-23/30, A43C1/00-19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2012
Kokai Jitsuyo Shinan Koho	1971-2012	Toroku Jitsuyo Shinan Koho	1994-2012

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 2005-211611 A (Takashi KAMASHIMA), 11 August 2005 (11.08.2005), paragraphs [0006] to [0007]; fig. 1, 3 (Family: none)	1-2, 4-5 3
Y A	JP 2007-105478 A (Jung Jeong Ja), 26 April 2007 (26.04.2007), paragraphs [0041] to [0048]; fig. 6 to 7 & KR 10-2006-0033701 A	1-2, 4-5 3
Y A	JP 2003-310306 A (Marugo Co.), 05 November 2003 (05.11.2003), paragraphs [0015], [0020] to [0021] (Family: none)	2 3

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search
02 August, 2012 (02.08.12)Date of mailing of the international search report
21 August, 2012 (21.08.12)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2012/061883

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2008-168102 A (Shigetoshi HASHIGUCHI) , 24 July 2008 (24.07.2008) , all drawings (Family: none)	1-5
A	JP 2003-265267 A (Katsumi HIRATA) , 24 September 2003 (24.09.2003) , all drawings (Family: none)	1-5

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 11018880 A [0003]