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(54) A FOOTSTOOL

SCHEMEL

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Description

[0001] The present invention relates to a displacement-resistant sole-supporting footstool

[0002] A footstool is normally used by a person to support the feet by using the back of the heels and or an area all the way up to the back of the calves as a point or points of contact with the supporting surface of the footstool. A footstool of this type is described in WO 2007/049970 A.

[0003] An alternative way of supporting the feet is to use the soles as the point or points of contact with a supporting surface, which - especially if slightly angled so that the toes are higher than the heels - can help to minimize slouching. However, unless the supporting surface that the soles are being pushed against is of considerable stability, for example it is fixed to the floor-or a wall, is of an abnormally heavy weight or is connected to the seat that the person is sitting on, the forces that are generated by the weight of the feet and a proportion of the weight of the legs plus any additional foot-pushing forces will displace the supporting surface away from the person and resulting in the soles losing contact with the supporting surface.

[0004] An object of the invention is to provide a free-standing footstool of normal weight which can be used to support the soles of the feet.

[0005] The invention provides a displacement-resistant footstool as claimed in Claim 1

[0006] More particularly, the displacement-resistant footstool is one in which the connecting means rebounds to its initial position when the footstool is not in use. Suitably the partial instability of the sole-supporting surface is horizontal instability, or vertical instability.

[0007] In a particular embodiment the partial instability is rotational instability. Furthermore, the downward travel of the sole-supporting surface may be adjustable.

[0008] In a particular embodiment, the connecting means is a springing means such as compressions springing means or suspension springing means and including nested springing means. For instance the connecting means is springing means on a sloped platform.

[0009] In another embodiment, the connecting means is a combination of hinging means and springing means. In that case, the springing means may be a torsion springing means, compression springing means or suspension springing means.

[0010] In yet a further embodiment the connecting means is a combination of shafting means and clock springing means.

[0011] Suitably the connecting means is a gas cylinder means.

[0012] Suitably the distance between the sole-supporting surface and the floor is adjustable.

[0013] In addition, the sole-supporting surface may be wide enough for at least 2 persons to use it. Alternatively, there are at least 2 separate sole-supporting surfaces for at least 2 persons to use separately.

[0014] In some instances, the resistance of the connecting means may be adjustable.Figure 1 is a perspective view of one possible way of constructing the invention, comprising a footstool 1 that consists of a rotationally unstable sole-supporting surface 2 that consists of an upholstered panel 2a and lever arms 2b; a ground-supported base 3 that consists of a platform 3a and rubber feet 3b; and connecting means 4 that is hidden underneath a safety guard 4c that has slots 4d for lever arms 2b to move freely through.

[0015] Figure 2 is a diagrammatic section of the same footstool as in Figure 1, and illustrates the connecting means 4 that consists of a limited-travel hinge 4a that only allows a travel of approximately 30° as indicated by reference number 5a, and compression springing means 4b. Also illustrated in Figure 2 is the angle at which the bottoms of lever arms 2b are bent (permanently) which is approximately 30°, as illustrated by reference number 2b'. The initial angle of the sole-supporting surface in relation to the floor is approximately 60° as indicated by reference number 5b, which is the angle at which the soles touch the sole-supporting surface on first contact.

[0016] Figure 3 is a diagrammatic section of the same footstool as in Figures 1 and 2, but with the person's feet 6 in contact with the sole-supporting surface 2 that is shown at its downward resting angle, which is approximately 30[deg.] in relation to the floor, as indicated by reference number 5c.

[0017] When the soles come into contact with the sole-supporting surface 2, the weight of the feet and a proportion of the weight of the legs plus any additional foot-pushing forces will cause the sole-supporting surface - as a result of its rotational instability - to drop downwards taking the feet along with it until the resting angle is reached. At this point, although the sole-supporting surface 2 will be at a 30[deg.] angle in the relation to the floor - as illustrated by reference number 5c in Figure 3 - the bottoms of lever arms 2b will be pressing onto the hinge 4a in a vertical direction. This means that the sole-released forces, which originated at a substantially horizontal direction that points away from the person have been redirected to a substantially vertically downward direction towards - and pressing onto - the floor. In effect, the sole-released forces will have been substantially converted from being displacement forces to being **displacement-resistant** forces.

[0018] The invention can also be manufactured using a variety of manufacturing techniques including multi-segment/function moulded plastics, foam or rubber.

Claims

1. A displacement-resistant footstool (1) comprising a sole-supporting surface (2), a ground-supported base (3) and connecting means (4) that connects the sole-supporting surface to the base **characterized in that** the sole-supporting surface (2) is par-

tially unstable so that when the soles touch the sole-supporting surface (2) said sole-supporting surface (2) moves and the connecting means (4) substantially redirects sole-released forces downwards and thus converts them into displacement-resistant forces.

2. A displacement-resistant footstool (1) according to claim 1, in which the connecting means (4) rebounds to its initial position when the footstool is not in use.

3. A displacement-resistant footstool (1) according to claim 2 in which the partial instability of the sole-supporting surface (2) is horizontal instability.

4. A displacement-resistant footstool (1) according to claim 2 in which the partial instability of the sole-supporting surface (2) is vertical instability.

5. A displacement-resistant footstool (1) according to claim 2 in which the partial instability of the sole-supporting surface (2) is rotational instability.

6. A displacement-resistant footstool (1) according to claim 2 in which the connecting means (4) is a springing means such as compressions springing means or suspension springing means and including nested springing means.

7. A displacement-resistant footstool (1) as claimed in claim 6, in which the connecting means (4) is springing means on a sloped platform.

8. A displacement-resistant footstool (1) as claimed in claim 6, in which the connecting means (4) is a combination of hinging means and springing means.

9. A displacement-resistant footstool (1) as claimed in claim 8, wherein when the connecting means is a springing means the springing means is a torsion springing means, compression springing means or suspension springing means.

10. A displacement-resistant footstool (1) as claimed in claim 4, in which the connecting means (4) is a combination of shafting means and clock springing means.

11. A displacement-resistant footstool (1) as claimed in claim 1, in which the connecting means (4) is a gas cylinder means.

12. A displacement-resistant footstool (1) as claimed in claim 1, in which the distance between the sole-supporting surface and the floor is adjustable.

13. A displacement-resistant footstool (1) as claimed in claim 1, in which the sole-supporting surface (4) is wide enough for at least 2 persons to use it, or in which there are at least 2 separate sole-supporting surfaces for at least 2 persons to use separately.

14. A displacement-resistant footstool (1) as claimed in claim 1, in which the resistance of the connecting means (4) is adjustable.

15. A displacement-resistant footstool (1) as claimed in claim 4, in which the downward travel of the sole-supporting surface (2) is adjustable.

Patentansprüche

1. Rutschfester Fußschemel (1), der eine Sohlenauflagefläche (2), eine auf dem Boden stehende Basis (3) und Verbindungsmittel (4) umfasst, die die Sohlenauflagefläche mit der Basis verbinden, **dadurch gekennzeichnet, dass** die Sohlenauflagefläche (2) teilweise instabil ist, so dass sich die genannte Sohlenauflagefläche (2), wenn sie von den Sohlen berührt wird, bewegt und die Verbindungsmittel (4) von der Sohle aufgebrachte Kräfte im Wesentlichen nach unten ablenkt und somit in rutschfeste Kräfte umwandelt.

2. Rutschfester Fußschemel (1) nach Anspruch 1, wobei die Verbindungsmittel (4) in ihre Anfangsposition zurückkehren, wenn der Fußschemel nicht im Gebrauch ist.

3. Rutschfester Fußschemel (1) nach Anspruch 2, bei dem die teilweise Instabilität der Sohlenauflagefläche (2) horizontale Instabilität ist.

4. Rutschfester Fußschemel (1) nach Anspruch 2, bei dem die teilweise Instabilität der Sohlenauflagefläche (2) vertikale Instabilität ist.

5. Rutschfester Fußschemel (1) nach Anspruch 2, bei dem die teilweise Instabilität der Sohlenauflagefläche (2) Drehinstabilität ist.

6. Rutschfester Fußschemel (1) nach Anspruch 2, wobei die Verbindungsmittel (4) Federn wie z.B. Druckfedern oder Aufhängefedern einschließlich verschachtelte Federn sind.

7. Rutschfester Fußschemel (1) nach Anspruch 6, bei dem die Verbindungsmittel (4) Federn auf einer geneigten Plattform sind.

8. Rutschfester Fußschemel (1) nach Anspruch 6, bei dem die Verbindungsmittel (4) eine Kombination aus Gelenken und Federn sind.

9. Rutschfester Fußschemel (1) nach Anspruch 8, wo-

bei, wenn die Verbindungsmittel Federn sind, die Federn Verdrehfedern, Druckfedern oder Aufhängefedern sind.

10. Rutschfester Fußschemel (1) nach Anspruch 4, bei dem die Verbindungsmittel (4) eine Kombination aus Wellen und Uhrfedern sind.

11. Rutschfester Fußschemel (1) nach Anspruch 1, bei dem die Verbindungsmittel (4) ein Gaszylinder sind.

12. Rutschfester Fußschemel (1) nach Anspruch 1, bei dem der Abstand zwischen Sohlenauflagefläche und Fußboden verstellbar ist.

13. Rutschfester Fußschemel (1) nach Anspruch 1, wobei die Sohlenauflagefläche (4) breit genug für die Benutzung durch zwei Personen ist oder wobei wenigstens zwei separate Sohlenauflageflächen vorhanden sind, die von wenigstens zwei Personen separat benutzt werden können.

14. Rutschfester Fußschemel (1) nach Anspruch 1, wobei der Widerstand der Verbindungsmittel (4) verstellbar ist.

15. Rutschfester Fußschemel (1) nach Anspruch 4, wobei der Abwärtsweg der Sohlenauflagefläche (2) verstellbar ist.

Revendications

1. Repose-pieds résistant au déplacement (1) comprenant une surface de support de semelles (2), une base appuyée au sol (3) et un dispositif de liaison (4) qui relie la surface de support de semelles à la base, **caractérisé en ce que** la surface de support de semelles (2) est partiellement instable, de telle sorte que lorsque les semelles touchent la surface de support de semelles (2), ladite surface de support de semelles (2) bouge et le dispositif de liaison (4) redirige vers le bas les forces libérées par la semelle et les convertit ainsi en forces de résistance au déplacement.

2. Repose-pieds résistant au déplacement (1) conforme à la revendication 1, dans lequel le dispositif de liaison (4) rebondit vers sa position initiale lorsque le repose-pieds n'est pas utilisé.

3. Repose-pieds résistant au déplacement (1) conforme à la revendication 2, dans lequel l'instabilité partielle de la surface de support de semelles (2) est une instabilité horizontale.

4. Repose-pieds résistant au déplacement (1) conforme à la revendication 2, dans lequel l'instabilité partielle de la surface de support de semelles (2) est une instabilité verticale.

5. Repose-pieds résistant au déplacement (1) conforme à la revendication 2, dans lequel l'instabilité partielle de la surface de support de semelles (2) est une instabilité rotative.

6. Repose-pieds résistant au déplacement (1) conforme à la revendication 2, dans lequel le dispositif de liaison (4) est un dispositif de ressort, tel qu'un dispositif de ressort comprimé ou un dispositif de ressort à suspension et comprenant un dispositif de ressort imbriqué.

7. Repose-pieds résistant au déplacement (1) conforme à la revendication 6, dans lequel le dispositif de liaison (4) est un dispositif de ressort sur une plateforme inclinée.

8. Repose-pieds résistant au déplacement (1) conforme à la revendication 6, dans lequel le dispositif de liaison (4) est une combinaison de dispositifs d'articulation et de ressort.

9. Repose-pieds résistant au déplacement (1) conforme à la revendication 8, étant précisé que lorsque le dispositif de liaison est un dispositif de ressort, le dispositif de ressort est un dispositif de ressort de torsion, un dispositif de ressort comprimé ou un dispositif de ressort de suspension.

10. Repose-pieds résistant au déplacement (1) conforme à la revendication 4, dans lequel le dispositif de liaison (4) est une combinaison de dispositif de transmission par arbre et de dispositif de ressort de montre.

11. Repose-pieds résistant au déplacement (1) conforme à la revendication 1, dans lequel le dispositif de liaison (4) est un dispositif à cartouche de gaz.

12. Repose-pieds résistant au déplacement (1) conforme à la revendication 1, dans lequel la distance entre la surface de support de semelles et le sol est réglable.

13. Repose-pieds résistant au déplacement (1) conforme à la revendication 1, dans lequel la surface de support de semelles (4) est assez large pour être utilisée par au moins deux personnes, ou dans lequel il existe deux surfaces de support de semelles séparées pour qu'au moins deux personnes les utilisent séparément.

14. Repose-pieds résistant au déplacement (1) conforme à la revendication 1, dans lequel la résistance du dispositif de liaison (4) est réglable.

15. Repose-pieds résistant au déplacement (1) conforme à la revendication 4, dans lequel le parcours de la surface de support de semelles (2) est réglable.

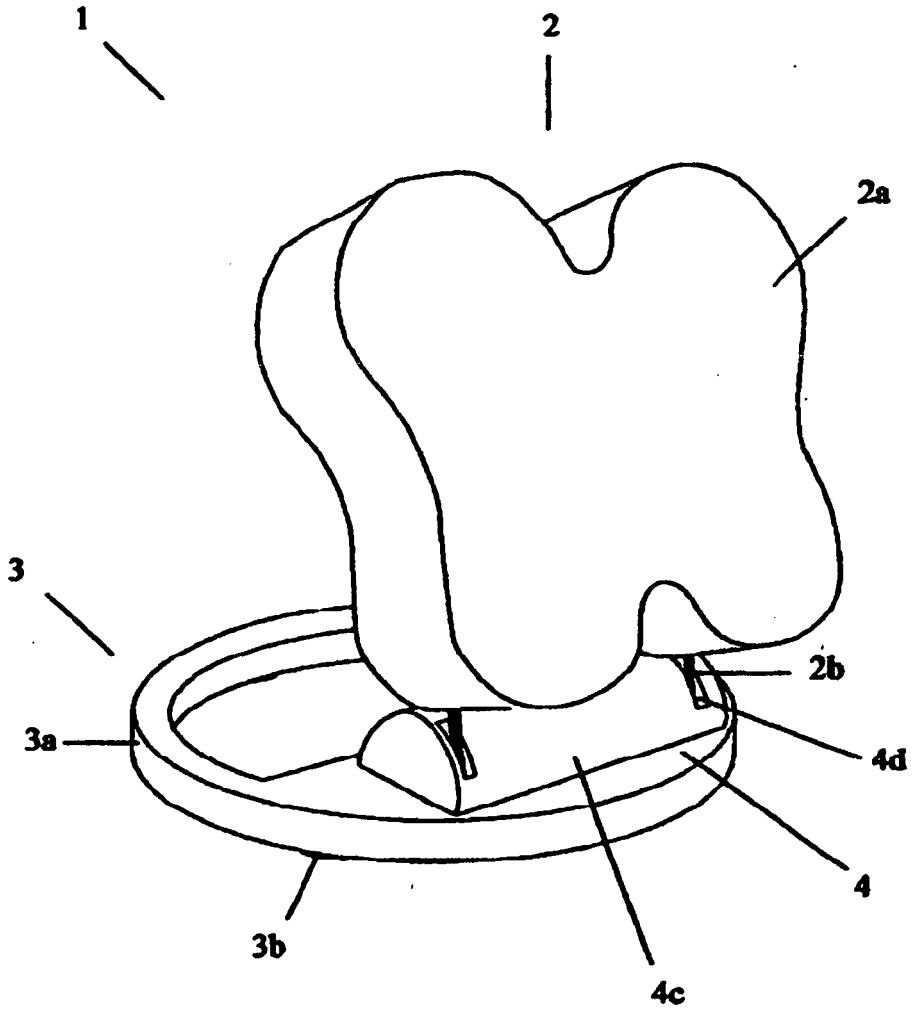

Figure 1

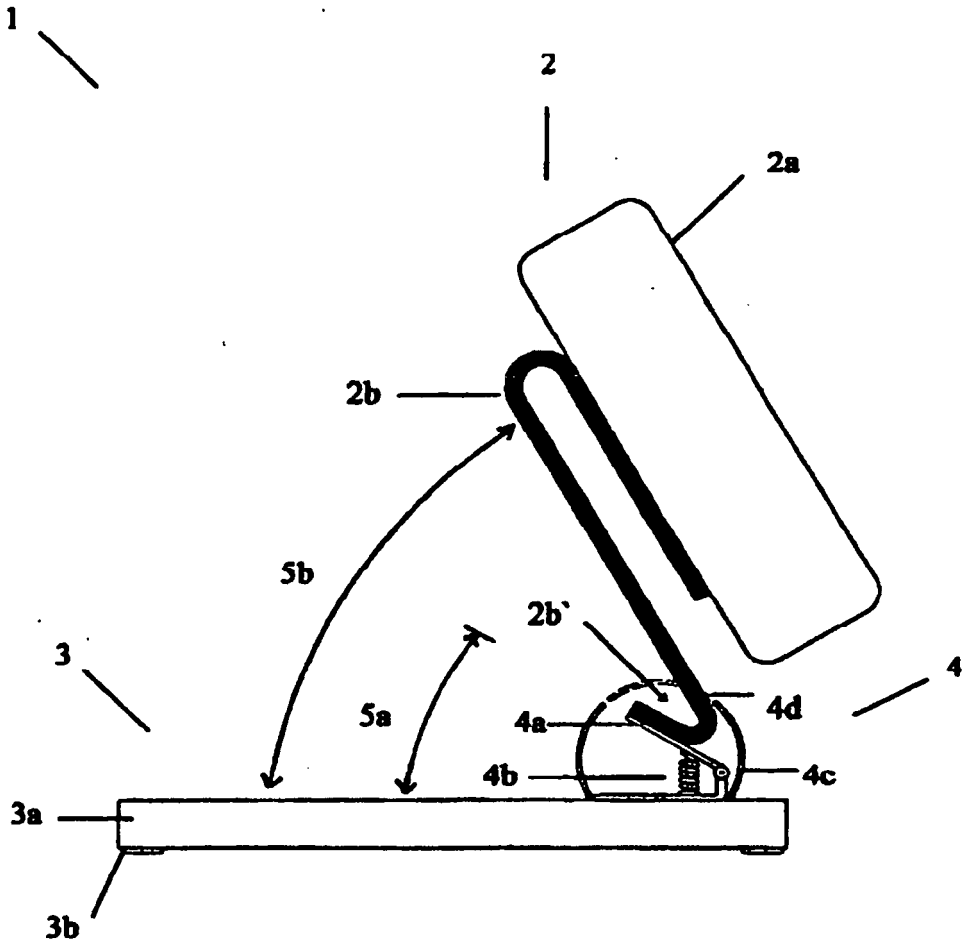

Figure 2

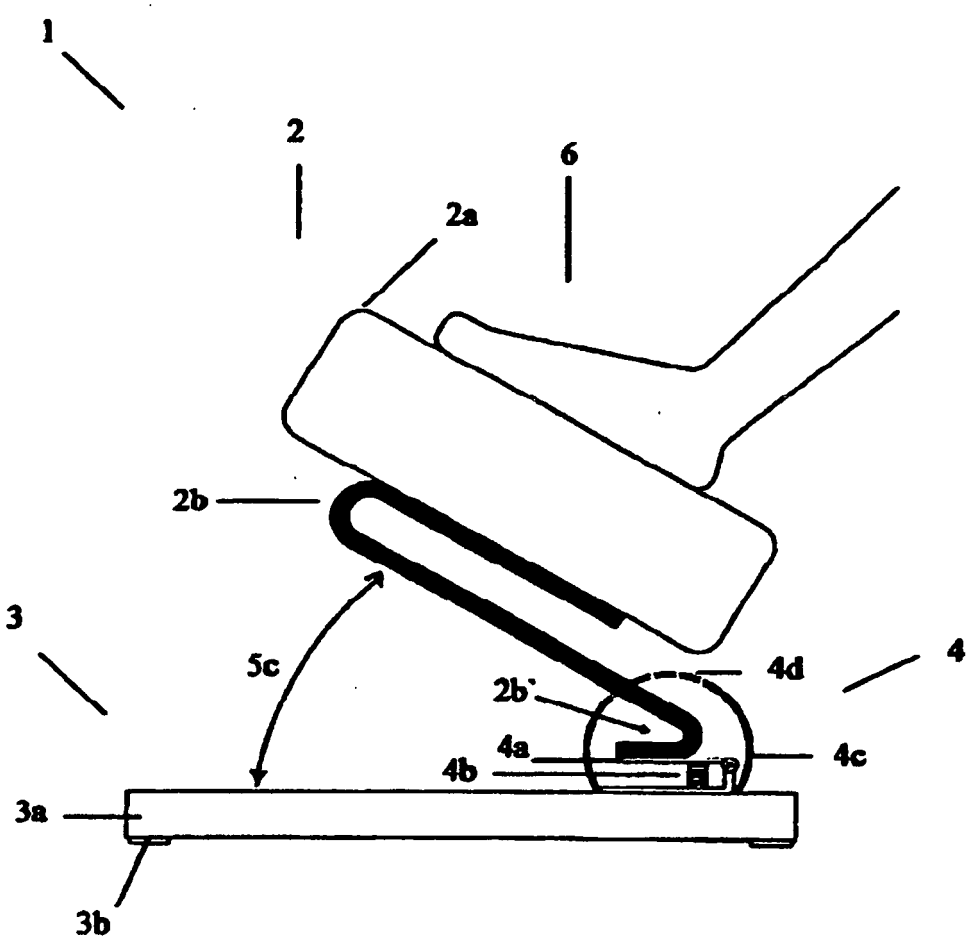

Figure 3

REFERENCES CITED IN THE DESCRIPTION

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