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(54) **ADJUSTABLE HANDLE FOR TOOLS LIKE PAINT BRUSHES**

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POIGNEE REGLABLE POUR OUTILS DE TYPE BROSSES A PEINDRE

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a brush for application of e.g. paint. More specifically, the invention relates to an adjustable paint brush for application of paint or the like, said paint brush comprising a bristle bar, a shaft and an adjustable joint between said bristle bar and said shaft.

PRIOR ART

[0002] Regarding paint jobs, it is a common problem with many paint brushes that the angle between the shaft and the bristle bar is fixed. This leads to the need of several different paint brushes for being able to paint from different positions. For example, if a high wall is to be painted, a long shaft extension must be used; a long shaft extension will lead to a need for a large angle between the shaft and the bristle bar, since it, in order to get a satisfactory paint result, is necessary to have a straight angle between the wall to be painted and the bristle bar.

[0003] There are several different paint brushes with tilted shafts on the market today. There is however only a few paint brushes with the possibility to vary the angle between the bristle bar and the shaft. One such paint brush is described in SEA-0 505 547. The brush described therein comprises a joint between the bristle bar and the handle; the joint comprises two opposite bevelled surfaces, and depending on how the bevelled surface are attached to one another, it is possible to achieve various angles between the bristle bar and the shaft. However, the setting between the bristle bar and the shaft is limited to two different angles; it is not possible to use angles between said two different angles.

[0004] US-A-5 502 859 describes a paint brush comprising a handle and a bristle bar. The bristle bar and the handle are connected by means of a joint comprising two friction surfaces, wherein the two friction surfaces are connected by means of a bolt and wing nut assembly; when the desired angle between the bristle bar and the shaft is set, the bolt and nut assembly is tightened, which increases the friction between the friction surfaces, which leads to the desired angle being maintained. Moreover, there is a rotatable joint between the bristle bar and the shaft; hence, it is possible to tilt the bristle bar in yet another degree of freedom.

[0005] There is however at least one problem with the paint brush according to US-A-5 502 859; as is well known by persons skilled in the art, friction joints tend to loosen after a period of time or use. This will result in a loose joint, which will make it impossible to work with the paint brush. If this happens during a paint job, the user must tighten the bolt and wing nut assembly while the brush is filled with paint, which most likely will result in the user getting paint on his hands.

[0006] Hence, there is a need for a paint brush whose

angle between the shaft and the bristle bar can be varied continuously, and in the same time is robust. Further, it should be beneficial if the angle between the bristle bar and the handle could be varied while the brush is filled with paint, without risk for the user to get paint on his or her hands.

[0007] One such handle has been proposed by GB 2 378 835, which has a similar disadvantage as US-A-5 502 859.

SUMMARY OF THE INVENTION

[0008] The present invention solves the above-mentioned and other problems by means of an adjustable joint comprising a control knob connecting a first track on a first semi-cylindrical gliding surface and a second track on a second gliding surface, wherein said first track runs in a diagonal manner over the first semi-cylindrical gliding surface, which imparts a turning motion between the first semi-cylindrical gliding surface and the second gliding surface as the control knob is moved along a direction parallel to the second track. Preferred embodiments are defined in the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Hereinafter, the present will be thoroughly explained, with reference to the appended drawings, wherein

Fig. 1 is a perspective view of an adjustable paint brush according to the present invention,
Fig 2 is a side view of a handle comprised in the paint brush of Fig. 1,
Fig 3 is a perspective view of a bristle bar connectable to the handle of Fig. 2, and
Fig. 4 is a perspective view of a control knob connecting the handle of Fig. 2 and the bristle bar of Fig. 3.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0010] Fig. 1 shows an adjustable paint brush 100, comprising a handle 200, a bristle bar 300 and a control knob 400. The bristle bar 300 carries a bundle of bristles 305, which are used to apply a layer of paint or the like on a surface to be coated. A scale 310 is printed on a front side of the bristle bar 300.

[0011] On Fig 2, the handle 200 is shown in a side view. The handle 200 comprises a grip portion 210 and a connection portion 220. The connection portion 220 comprises two oppositely placed shoulders 230, 230', which are projecting towards one another. The shoulders 230, 230' have a circular shape and bevelled portions 235, 235'. Moreover, the handle 200 comprises a first gliding surface 240, which includes a groove 245 (shown in Fig. 1).

[0012] The bristle bar 300 is shown in Fig. 3. The bristle

bar comprises a semicircular gliding surface 305 with a diagonal groove 310, two recesses 315, 315' and a holder 320 for the bundle of bristles 305. As can be seen in Fig. 3, the groove 310 runs in a diagonal trajectory from a top portion of the semicircular gliding surface 305, in the vicinity of the recess 315', to a side portion of the semicircular gliding surface 305 in the vicinity of the recess 315.

[0013] The control knob 400 is shown in Fig. 4. It comprises a manoeuvre key 410, a transfer portion 420, a first semicircular gliding surface 430, a second semicircular gliding surface 440, and a gliding surface 450. Between the first 430 and second 440 gliding surfaces, there is a first groove tracker 460, adapted and arranged for engagement with the groove 310 on the bristle bar 300. Furthermore, there is a groove tracker 470 projecting from the gliding surface 450. The groove tracker 470 is arranged and adapted for engagement with the groove 245 in the first gliding surface 240 of the handle 200.

[0014] For assembling of the adjustable paint brush 100, the groove tracker 470 of the control knob 400 is inserted in the groove 245 of the handle 200 in a first assembly step. In a second, and last, assembly step, the handle 200 is placed so that the handle 200 can be pushed so that the shoulders 230 and 230' engage with the recesses 315' and 315, respectively. The bevelled portions 235, 235' facilitate this operation. During the second assembly step, it is crucial that the position of the control knob 400 is such that the groove tracker 460 engages the groove 310 of the bristle bar.

[0015] As now should be readily understood by persons skilled in the art, the engagement between the shoulders and the recesses allows rotation of the bristle bar around an axis of rotation reaching between the shoulders 230 and 230'. This rotation is controlled by the position of the control knob; since the groove 310 of the bristle bar runs in a trajectory joining a top portion of the semi cylindrical gliding surface at one end of the bristle bar and a side portion of the semi cylindrical gliding surface at the other end of the bristle bar, a longitudinal movement of the control knob along the groove 245 will impart a rotating movement between the shaft 200 and the bristle bar 300.

[0016] It can in some cases be advantageous if there is a certain amount of pretension between the gliding surface 305, the gliding surface 240 and the corresponding gliding surfaces of the control knob; this will avoid involuntary movements of the control knob, and hence a change of the angular position between the shaft 200 and the bristle bar 300. Pre-tension between said parts will give a certain amount of deflection of the gliding surfaces 305 and 240.

[0017] An important feature of the adjustable paint brush 100 is that it is self-locking, i.e. the angle between the bristle bar and the handle will not change, regardless of how high a force is supplied to bristle bar and handle; the only way to alter the angle is to change the position of the control knob.

[0018] Generally, it is advantageous that the bristle bar

can turn about 90 degrees if the control knob is moved from one side to the other. It is also advantageous if the paint brush 100 is "straight" in one end position of the control knob; since a paint brush is generally symmetric, it does not matter very much if the bristle bar is turned to the left or to the right; all the user has to do in order to turn the bristle bar to the left or the right is to rotate the shaft 180 degrees around the longitudinal axis of the grip portion 210.

[0019] Above, the invention has been described as an adjustable paint brush. However, the invention is not limited to paint brushes, but is valid for any kind of hand held tool that can be divided into a shaft portion and a work piece, e.g. putties, glazing knives, cleaning brushes, spray-coating or spray-painting devices, paperhanging brushes, wallpaper rolls, casing wheels, or the like. Furthermore, the term paint brush should be interpreted in its broadest sense, namely as a hand held tool or an applicator for a liquid. The liquid could for instance be paint, stain, chalk, plaster, cautery, plastic, mordant, lacquer, etc. The bundle of bristles could e.g. be replaced with a fibre mat. In yet another embodiment, the applicator could be a roller.

[0020] Moreover, it might in some cases be advantageous to be able to fasten an elongation to the shaft, e.g. to be able to paint high walls. Such elongations are well known by persons skilled in the art and will hence not be more thoroughly described.

[0021] Furthermore, an automatic paint feeding mechanism can be used in conjunction with the adjustable paint brush according to the present invention. Such a paint feeding mechanism feeds paint through a conduit, from a paint container to the bundle of bristles.

[0022] Still further, the grooves 245 and 310 can be replaced with any suitable kind of devices, e.g. shoulders, bars, rods, that allow tracking between the semi-cylindrical gliding surface 305, the control knob 400 and the gliding surface 240.

[0023] As can be understood, there are many possible modifications that can be carried out without departing from the scope of the present invention, which is defined in the appended claims.

Claims

1. An adjustable tool (100), said tool (100) comprising a work piece (300), a shaft (200) and an adjustable joint between said work piece (300) and said shaft (200), **characterised in that** said adjustable joint comprises a control knob (400) connecting a first track (310) on a first semi-cylindrical gliding surface (305) and a second track (245) on a second gliding surface (240), said first track (310) running in a diagonal manner over the first semi-cylindrical gliding surface (305), which imparts a turning motion between the first semi-cylindrical gliding surface (305) and the second gliding surface (240) as the control

knob (400) is moved along a direction parallel to the second track (245).

2. The adjustable tool (100) according to claim 1, wherein the work piece is an applicator or paint or the like. 5
3. The adjustable tool (100) according to claim 1 or 2, wherein the first track (310) is a groove. 10
4. The adjustable tool (100) according to claim 1 or 2, wherein the second track (245) is a groove.
5. The adjustable tool (100) according to any of the preceding claims, wherein the first semi-cylindrical gliding surface (305) is an integral part of the bristle bar (300). 15
6. The adjustable tool (100) according to any of the preceding claims, wherein the second gliding surface (240) is an integral part of the handle. 20
7. The adjustable tool (100) according to any of the preceding claims, wherein the first semi-cylindrical gliding surface (305) is suspended from the second gliding surface (240) by means of shoulders (230, 230') engaging recesses (315, 315') on longitudinal ends of the first semi-cylindrical gliding surface (305). 25
8. The adjustable tool (100) according to any of the preceding claims, wherein there is a certain pretension between the first semi-cylindrical gliding surface (305), the second gliding surface (240) and corresponding gliding surfaces (430, 440, 450) of the control knob (400). 30
9. The adjustable tool (100) according to any of the preceding claims, wherein a scale (310) is printed on the first semi-cylindrical gliding surface (305). 35
10. The adjustable tool (100) according to any of the preceding claims, wherein the shaft (200) is arranged and adapted for allowing an elongation to be fastened to said shaft (200). 40
11. The adjustable tool (100) according to claim 7, wherein the shoulders (230, 230') comprise bevelled portions (235, 235') for facilitating the engagement with the recesses (315, 315'). 45

Patentansprüche

1. Verstellbares Werkzeug (100), welches Werkzeug (100) ein Werkstück (300), einen Schaft (200) und ein verstellbares Gelenk zwischen dem Werkstück (300) und dem Schaft (200) umfasst, **dadurch ge-** 55

kennzeichnet, dass das verstellbare Gelenk einen Einstellknopf (400) umfasst, welcher eine erste Spur (310) auf einer ersten halbzyklindrischen Gleitfläche (305) und eine zweite Spur (245) auf einer zweiten Gleitfläche (240) verbindet, wobei die erste Spur (310) diagonal über die erste halbzyklindrische Gleitfläche (305) läuft, was eine Drehbewegung zwischen der ersten halbzyklindrischen Gleitfläche (305) und der zweiten Gleitfläche (240) bewirkt, wenn der Einstellknopf (400) entlang einer zur zweiten Spur (245) parallelen Richtung bewegt wird.

2. Verstellbares Werkzeug (100) nach Anspruch 1, wobei das Werkstück ein Auftrageelement oder ein Pinsel oder dergleichen ist.
3. Verstellbares Werkzeug (100) nach Anspruch 1 oder 2, wobei die erste Spur (310) ein Schlitz ist.
4. Verstellbares Werkzeug (100) nach Anspruch 1 oder 2, wobei die zweite Spur (245) ein Schlitz ist.
5. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei die erste halbzyklindrische Gleitfläche (305) ein integrierter Teil des Borstenstücks (300) ist.
6. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei die zweite Gleitfläche (240) ein integrierter Teil des Griffs ist.
7. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei die erste halbzyklindrische Gleitfläche (305) an der zweiten Gleitfläche (240) mittels Schultern (230, 230') aufgehängt ist, welche mit Aussparungen (315, 315') in Längsenden der ersten halbzyklindrischen Gleitfläche (305) in Eingriff gehen.
8. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei es eine gewisse Vorspannung zwischen der ersten halbzyklindrischen Gleitfläche (305), der zweiten Gleitfläche (240) und entsprechenden Gleitflächen (430, 440, 450) des Einstellknopfs (400) gibt.
9. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei eine Skala (310) auf der ersten halbzyklindrischen Gleitfläche (305) aufgedruckt ist.
10. Verstellbares Werkzeug (100) nach einem der vorhergehenden Ansprüche, wobei der Schaft (200) für das Befestigen einer Verlängerung an dem Schaft (200) eingerichtet und angepasst ist.
11. Verstellbares Werkzeug (100) nach Anspruch 7, wobei die Schultern (230, 230') angeschrägte Abschnit-

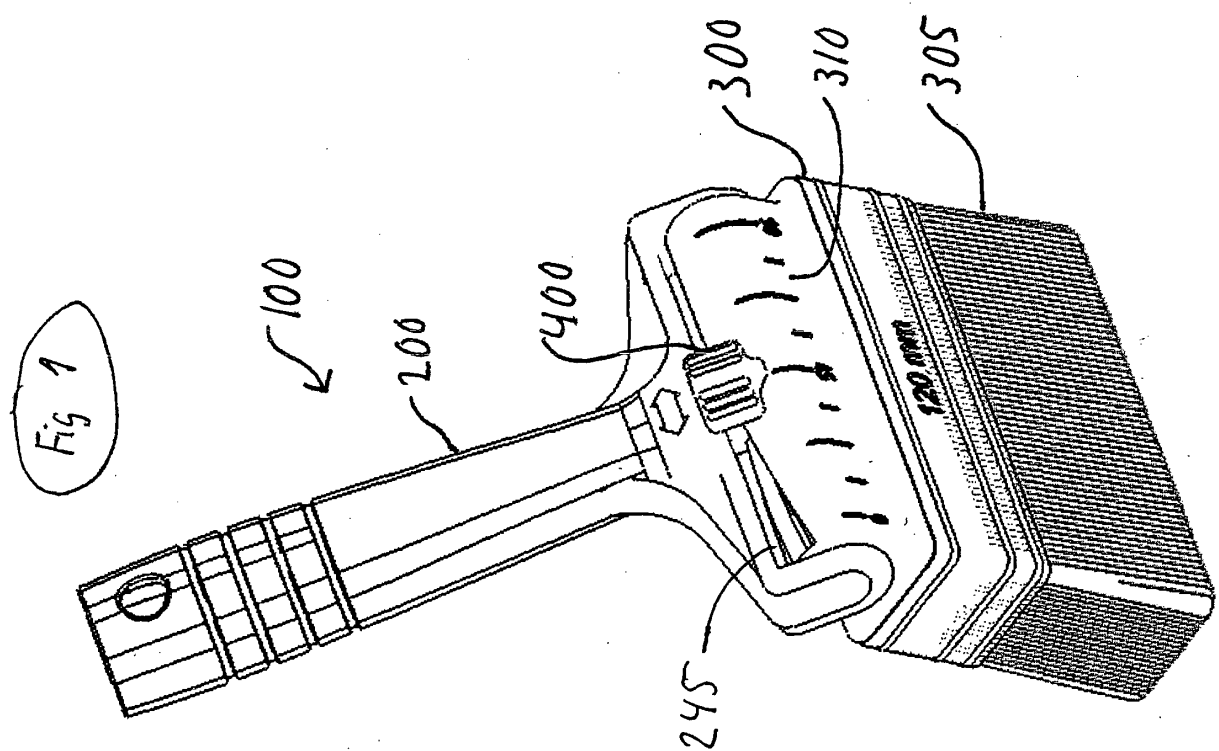
te (235, 235') zum Erleichtern des Eingriffs mit den Aussparungen (315, 315') umfassen.

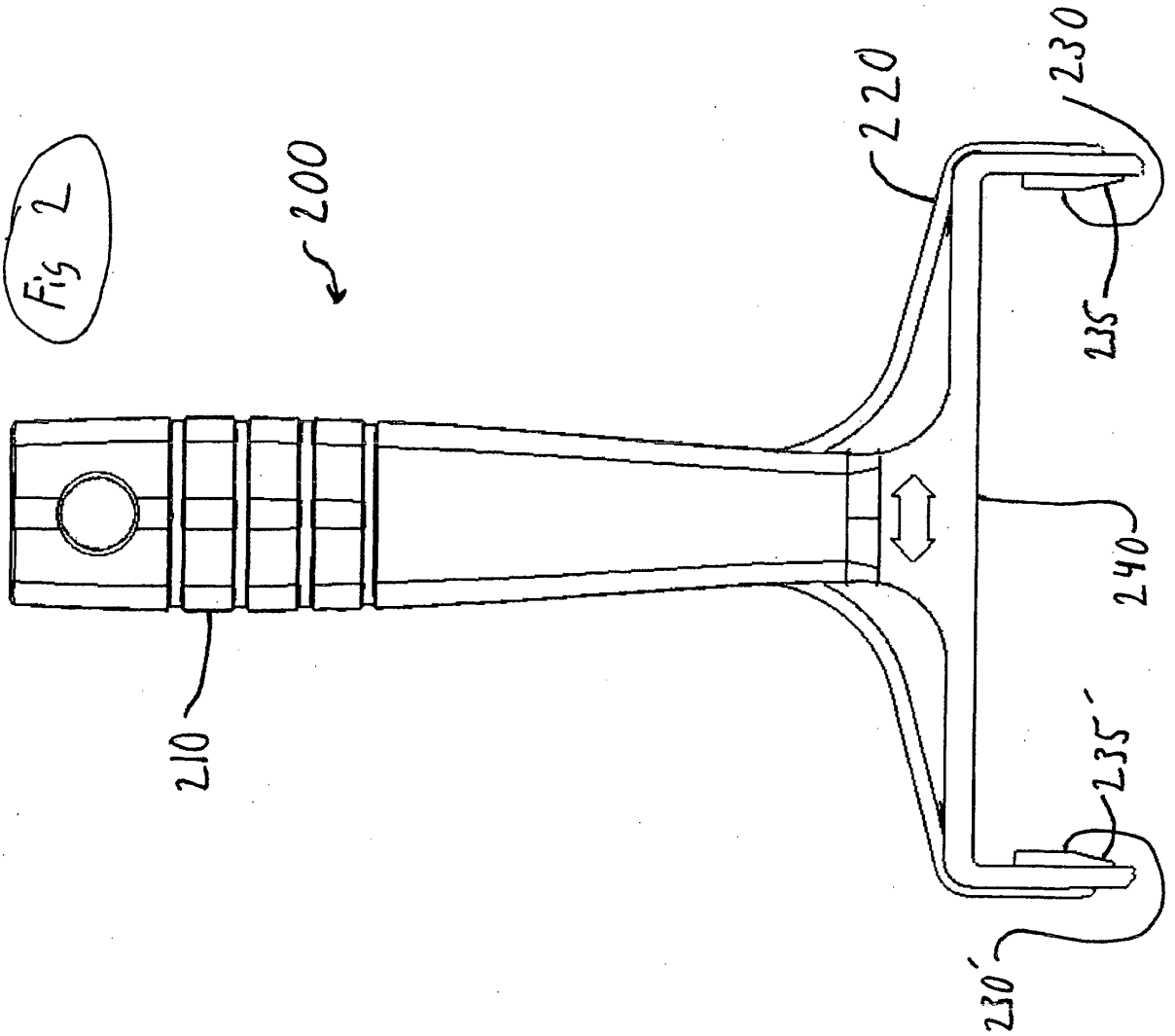
Revendications

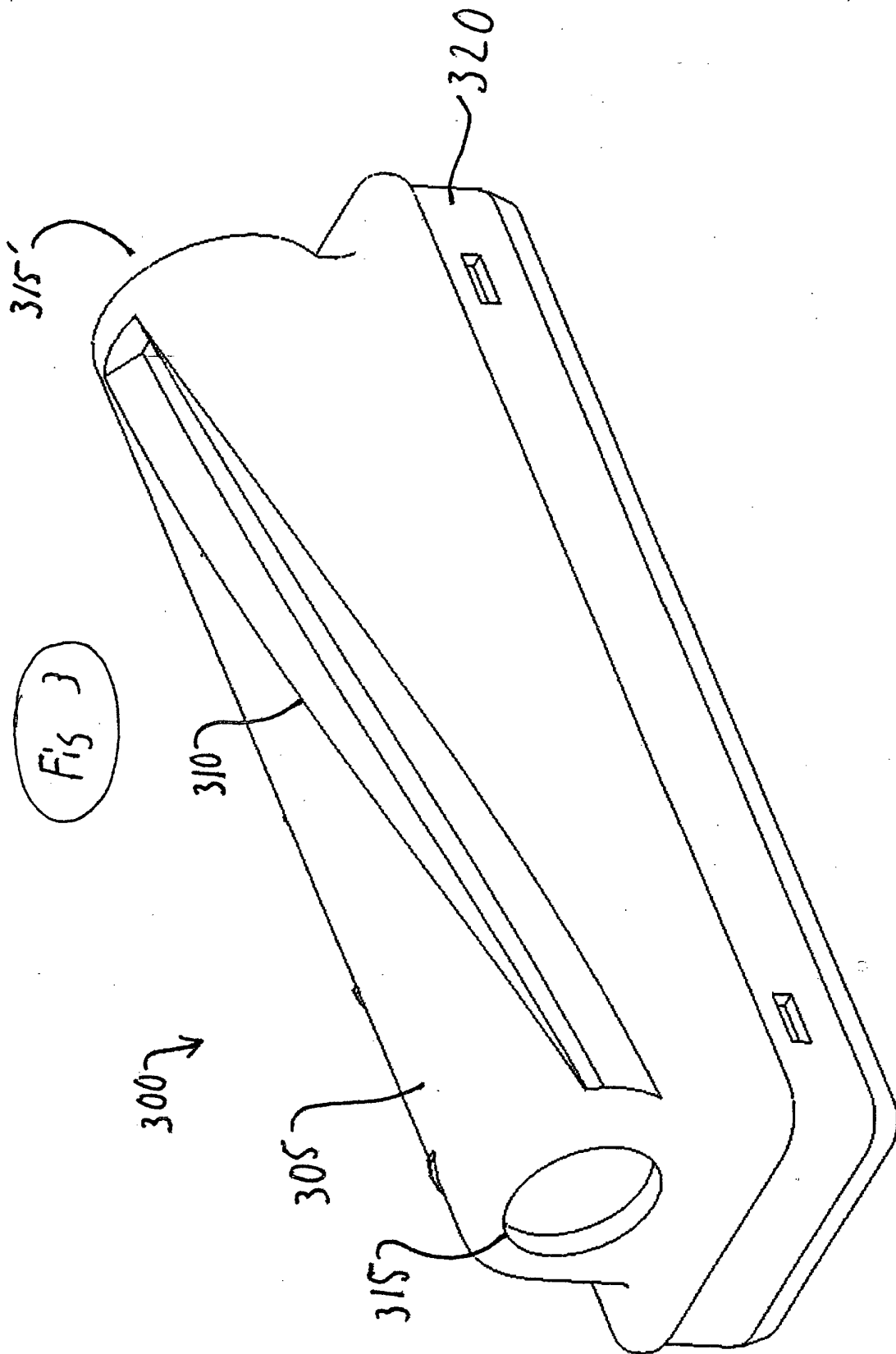
1. Outil réglable (100), ledit outil (100) comprenant une pièce à usiner (300), un arbre (200) et une articulation ajustable entre ladite pièce à usiner (300) et ledit arbre (200), **caractérisé en ce que** ladite articulation ajustable comprend un bouton de commande (400) reliant une première piste (310) sur une première surface de glissement semi-cylindrique (305) et une deuxième piste (245) sur une deuxième surface de glissement (240), ladite première piste (310) s'étendant d'une manière diagonale au-dessus de la première surface de glissement semi-cylindrique (305), qui confère un mouvement de rotation entre la première surface de glissement semi-cylindrique (305) et la deuxième surface de glissement (240) lorsque le bouton de commande (400) est déplacé le long d'une direction parallèle à la deuxième piste (245). 5
2. Outil réglable (100) selon la revendication 1, dans lequel la pièce à usiner est un applicateur ou une brosse à peindre ou analogue. 10
3. Outil réglable (100) selon la revendication 1 ou 2, dans lequel la première piste (310) est une rainure. 15
4. Outil réglable (100) selon la revendication 1 ou 2, dans lequel la deuxième piste (245) est une rainure. 20
5. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel la première surface de glissement semi-cylindrique (305) est une partie intégrante de la barre de brossage (300). 25
6. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel la deuxième surface de glissement (240) est une partie intégrante de la poignée. 30
7. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel la première surface de glissement semi-cylindrique (305) est suspendue à partir de la deuxième surface de glissement (240) par l'intermédiaire d'épaulements (230, 230') s'engageant dans des évidements (315, 315') sur des extrémités longitudinales de la première surface de glissement semi-cylindrique (305). 35
8. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel il existe une certaine précontrainte entre la première surface de glissement semi-cylindrique (305), la deuxième surface de glissement (240) et des surfaces de glissement correspondantes (430, 440, 450) du bouton de 40

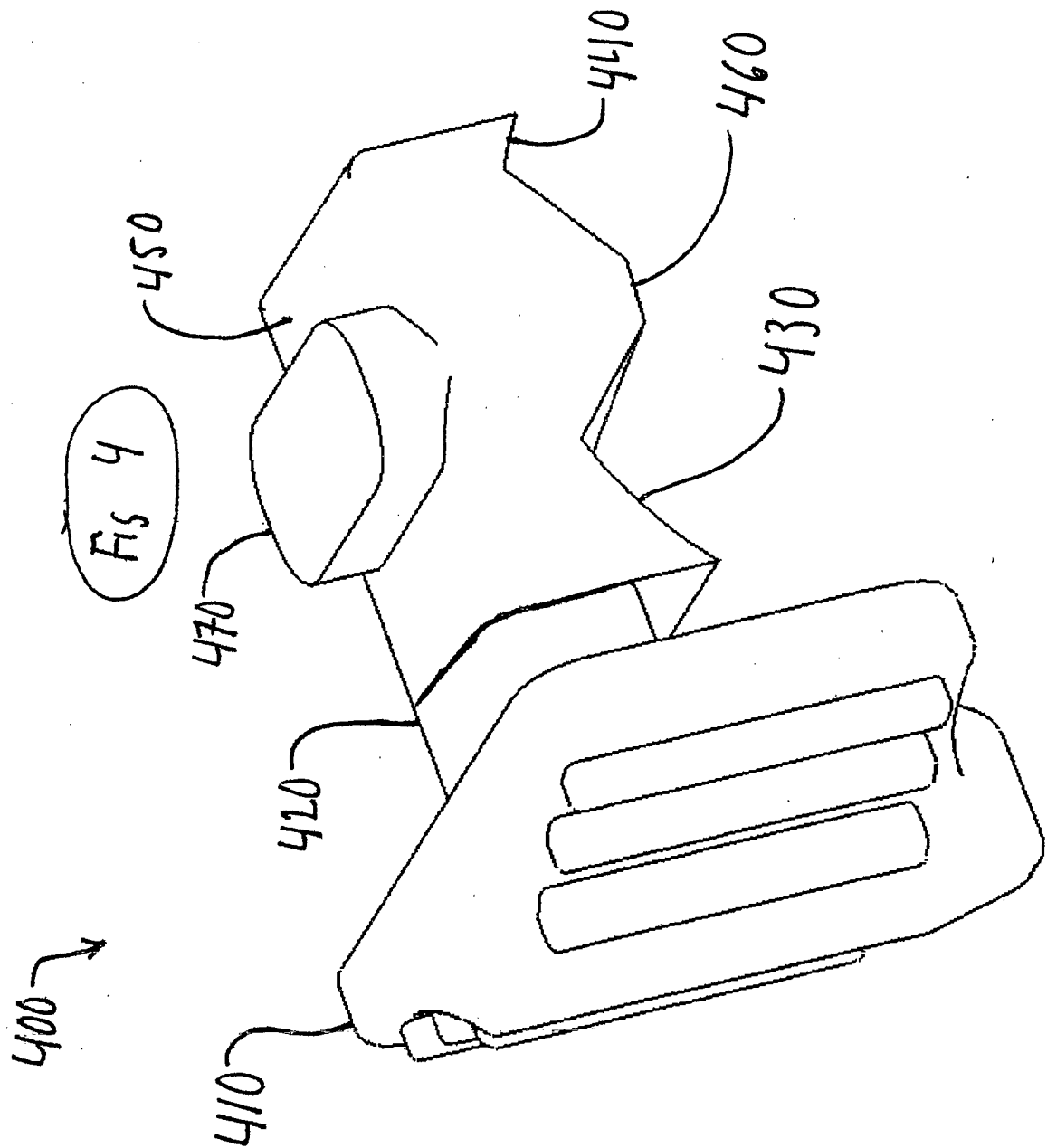
commande (400).

9. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel une échelle (310) est imprimée sur la première surface de glissement semi-cylindrique (305). 45
10. Outil réglable (100) selon l'une quelconque des revendications précédentes, dans lequel l'arbre (200) est agencé et adapté pour permettre une elongation à être fixée sur ledit arbre (200). 50
11. Outil réglable (100) selon la revendication 7, dans lequel les épaulements (230, 230') comprennent des parties biseautées (235, 235') pour faciliter la prise avec les évidements (315, 315'). 55









REFERENCES CITED IN THE DESCRIPTION

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