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(54) **Personal hygiene apparatus for washing and massaging a person's back**

(57) A personal hygiene apparatus for washing and massaging a person's back comprises a plurality of cleaning elements, associated with a supporting framework and driven by driving means causing the cleaning elements to be reciprocatedly driven along the person's back or other body portion adjoining the cleaning elements. Said cleaning elements comprise bristled or foamed cleaning rollers, mounted on respective mounting axles. Said driving means comprise a worm screw therealong two screw nuts slide in opposite directions, each screw nut being associated with a free end portion of the axle thereby vertically reciprocatedly driving the cleaning elements.

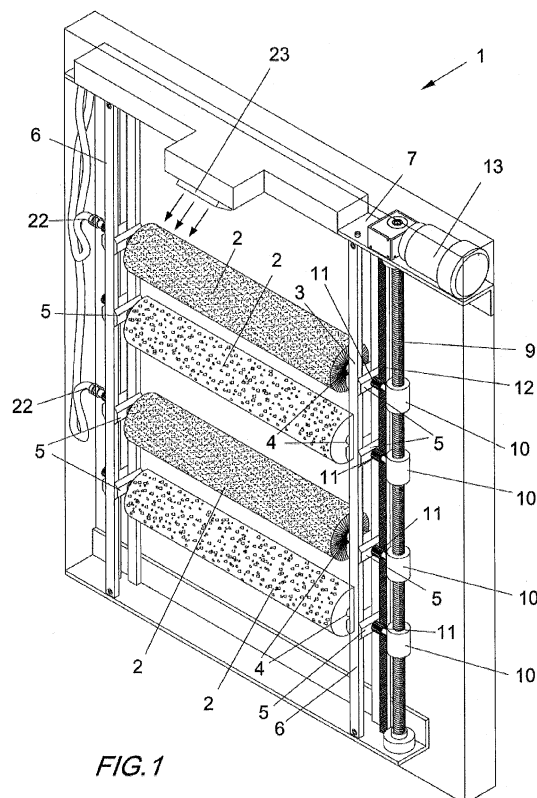


FIG. 1

## Description

### BACKGROUND OF THE INVENTION

[0001] The present invention relates to a personal hygiene apparatus for washing and massaging a person's back.

[0002] An old problem in the personal hygiene field, is that of properly accurately washing the back.

[0003] In addition to manual back washing tools, such as long-handle brush assemblies, no practical automatic apparatus for easily washing a person's back has been proposed so far.

### SUMMARY OF THE INVENTION

[0004] The aim of the present invention is to provide a back washing apparatus, specifically designed for a shower box, allowing to easily wash body portions which cannot be easily accessed by a person.

[0005] Within the scope of the above mentioned aim, a main object of the invention is to provide such a back washing and massaging apparatus which may be applied to a wall or other vertical support, both in a shower box and in other environments.

[0006] Another object of the present invention is to provide such an apparatus which may be easily and quickly used.

[0007] Yet another object of the present invention is to provide such an apparatus which is very simple and inexpensive from a construction viewpoint.

[0008] Yet another object of the present invention is to provide such a back washing and massaging apparatus which, owing to its specifically designed structural features, is very reliable and safe in operation.

[0009] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a personal hygiene apparatus, **characterized in that** said apparatus comprises cleaning elements associated with a framework and driven by driving means causing said cleaning elements to be reciprocatedly moved along a person's back or other body part adjoining said cleaning elements.

[0010] Said cleaning elements comprise a plurality of bristle or foamed rollers mounted on respective roller mounting axles or shafts.

[0011] Alternatively, said cleaning elements comprise rotary brush elements including turbines rotatively driving said brush elements by pressure fed water.

[0012] Said driving means comprise a worm screw, therealong two screw nuts are caused to be reciprocated in opposite directions.

[0013] Each said screw nut is associated or coupled to a free end portion of the driving axle or shaft, thereby reciprocatedly vertically driving the cleaning elements.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated by way of an indicative but not limitative example in the accompanying drawings, where:

Figure 1 is a front elevation view of the personal hygiene apparatus according to the present invention, shown in an operating condition thereof;

Figure 2 is a side elevation view of the inventive apparatus, in its operating condition;

Figure 3 is a view similar to Figure 2, in which the cleaning devices or elements are shown in a different operating position;

Figure 4 is a perspective view of the apparatus according to the present invention;

Figure 5 shows that same device shown in Figures 1, 2, 3 and 4 in an embodiment thereof designed to be used by a person bearing his/her back against the rotary and cleaning rollers;

Figure 6 shows that same device comprising turbo-brush assemblies including bristles rotating about a horizontal axis directed to the user's body, jointly with substantially cylindric brush assemblies rotating about axes adapted to be upward and downward displaced in parallel to the user's body; and

Figure 7 shows a user arranged to allow his/her back to be washed by rotary brush assemblies driven by water pressure operated turbines.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] With reference to the number references of the above mentioned figures, the personal hygiene apparatus, according to the present invention, which has been generally indicated by the reference number 1, comprises a plurality of cleaning elements 2 associated with a supporting framework 3 and driven by driving means thereby said cleaning elements may be reciprocatedly moved along a person's back or other body portion adjoining said cleaning elements.

[0016] Said cleaning elements 2 advantageously comprise a plurality of bristle or foamed rollers, mounted on respective driving axles or shafts 4.

[0017] Each said driving axle or shaft 4 has end portions thereof coupled to sliding carriages 5, which are designed for sliding along two vertical sliding guides 6, in turn clamped to a top cross-member 7 and a bottom 8.

[0018] Said vertical guides 6, top cross-member 7 and base or bottom 8 form said supporting framework 3.

[0019] The driving means comprise a worm screw 9 therealong two screw nut elements 10 are reciprocated in opposite directions.

[0020] Each said screw nut element 10 is associated

with a free end portion of the axle 4, thereby vertically reciprocating the cleaning elements 2.

[0021] At each free end portion, each said driving axle or shaft comprises a gear element 11, designed for meshing with a rack 12 parallel to the worm screw 9.

[0022] For providing the system with an improved stiffness, a further rack 12 is optionally provided, arranged on the other side of the framework, and operating on gear elements 11 keyed on the opposite free end portions of the axles 4.

[0023] Thus, a vertical movement of the axles 4 will rotatively drive the gears 11, due to the movement along the rack 12, and accordingly will in turn rotatively drive said axles 4.

[0024] Accordingly, as the worm screw 9 is rotatively driven, said axles 4 will be vertically and rotatively driven, thereby in turn correspondingly driving the cleaning elements 2 mounted thereon.

[0025] The worm screw 9 is rotatively driven by motor means 13.

[0026] The apparatus 1 according to the present invention is preferably affixed to a wall inside a shower box or to any suitable types of vertical support arrangement.

[0027] The inventive apparatus operates in a very simple manner.

[0028] In fact, it is sufficient to actuate the motor means 13 by the user to correspondingly drive the cleaning elements which are automatically reciprocatedly driven in an alternating vertical and rotary direction.

[0029] Thus, the user may bear his/her back, or other body portion, on the cleaning elements, which will operate by a cleaning force depending on the pressure applied by the user, according to his/her requirements.

[0030] Figures 6 and 7 show turbo-brush assemblies 20 including brush elements 21 rotating about a horizontal axis directed towards the user's body.

[0031] Said brush elements 21 are rotatively driven by driving turbines operated by a pressurized water flow, conveyed through flexible hoses 22 into tubes 27 supporting said turbo-brush assemblies 20.

[0032] It has been found that the invention fully achieves the intended aim and objects.

[0033] In fact, the invention has provided a personal hygiene apparatus adapted to operate as a back washing and massaging implement.

[0034] Said apparatus is particularly effective when mounted in a shower box, or other like structure, for aiding the user in properly cleaning and massaging his/her back or other body portions.

[0035] The simple and strong construction of the apparatus allows the latter to reliably and easily operate.

[0036] In practicing the invention, the used materials, as well as the contingent size may be any, depending on requirements.

## Claims

1. A personal hygiene apparatus for washing and massaging a person's back, **characterized in that** said apparatus comprises a plurality of cleaning elements, associated with a supporting framework and driven by driving means to be reciprocatedly moved along a person's back or other body portion adjoining said cleaning elements.
2. An apparatus, according to claim 1, **characterized in that** said cleaning elements comprise bristled or foamed rollers mounted on respective supporting axles.
3. An apparatus, according to claim 1, **characterized in that** each said supporting axle comprises axle end portions associated with sliding carriages adapted to slide along two vertical guides in turn affixed to a top cross member and a bottom base.
4. An apparatus, according to claim 1, **characterized in that** said driving means comprise a worm screw thereon at least two screw nuts reciprocatedly oppositely slide, each said screw nut being associated with a free end portion of the axle, thereby vertically reciprocatedly driving said cleaning elements.
5. An apparatus, according to claim 4, **characterized in that** each said axle comprises, at a free end portion thereof, a gear element adapted to mesh with a rack parallel to the worm screw.
6. An apparatus, according to one or more of the preceding claims, **characterized in that** said apparatus further comprises a second rack arranged at the other side of the framework and operating on gear elements keyed on opposite free end portions of said axles.
7. An apparatus, according to one or more of the preceding claims, **characterized in that** as said axles are vertically driven, said gear elements are rotatively driven along said racks.
8. An apparatus, according to one or more of the preceding claims, **characterized in that** said worm screw is rotatively driven by a driving motor causing said axles and cleaning elements mounted thereon to be both vertically and rotatively displaced.
9. An apparatus, according to one or more of the preceding claims, **characterized in that** said apparatus comprises a plurality of rotating brush assemblies rotatively driven about an axis directed to the user's body, said brush assemblies being driven by pressurized water conveyed through flexible hoses into tubular shafts thereon said brush assemblies and

related turbines are mounted.

10. An apparatus, according to one or more of the preceding claims, **characterized in that** said apparatus is adapted to be affixed to a shower box wall inner surface or to any other vertical support arrangements and **in that** said apparatus further comprises a water delivery top outlet.

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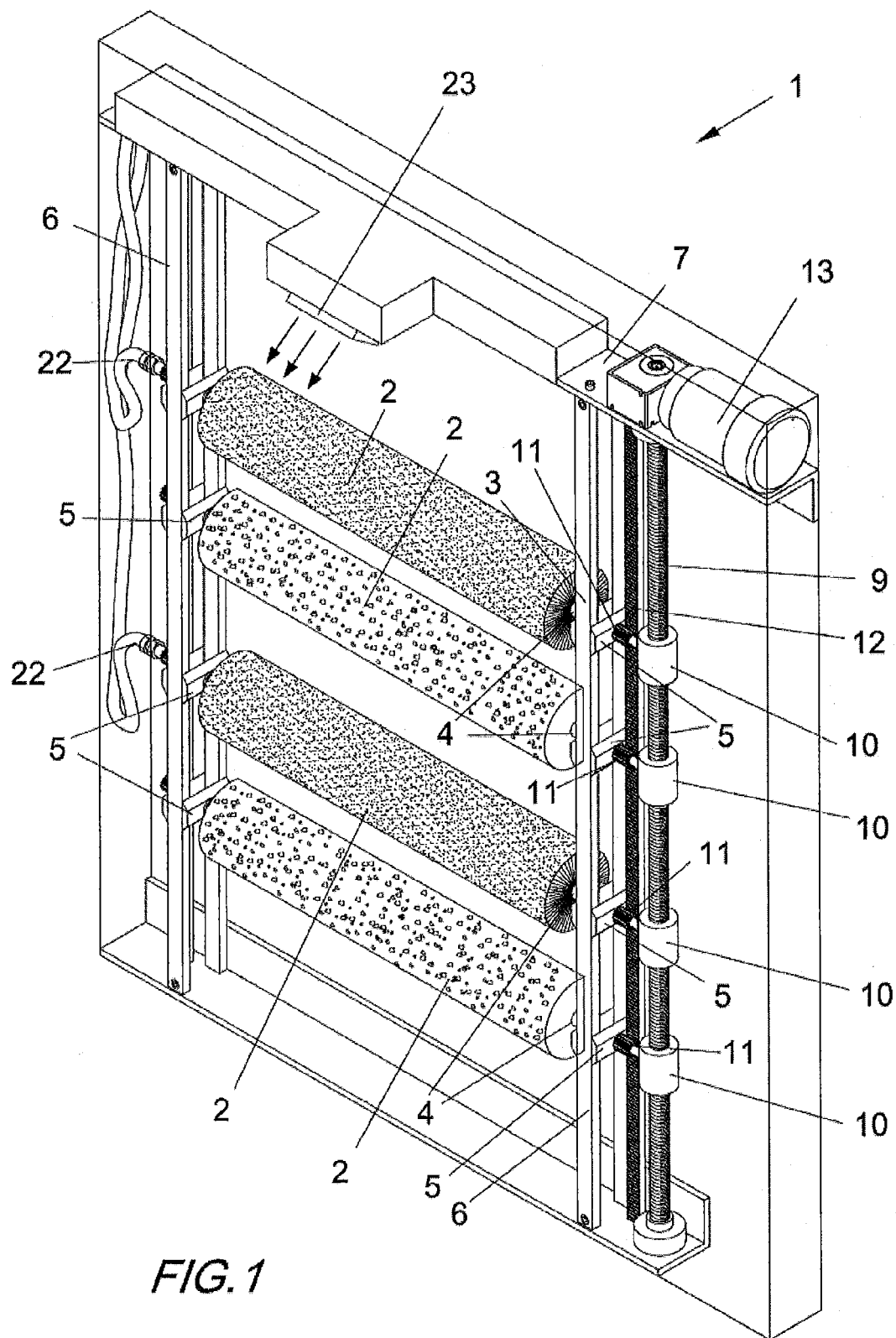


FIG. 1

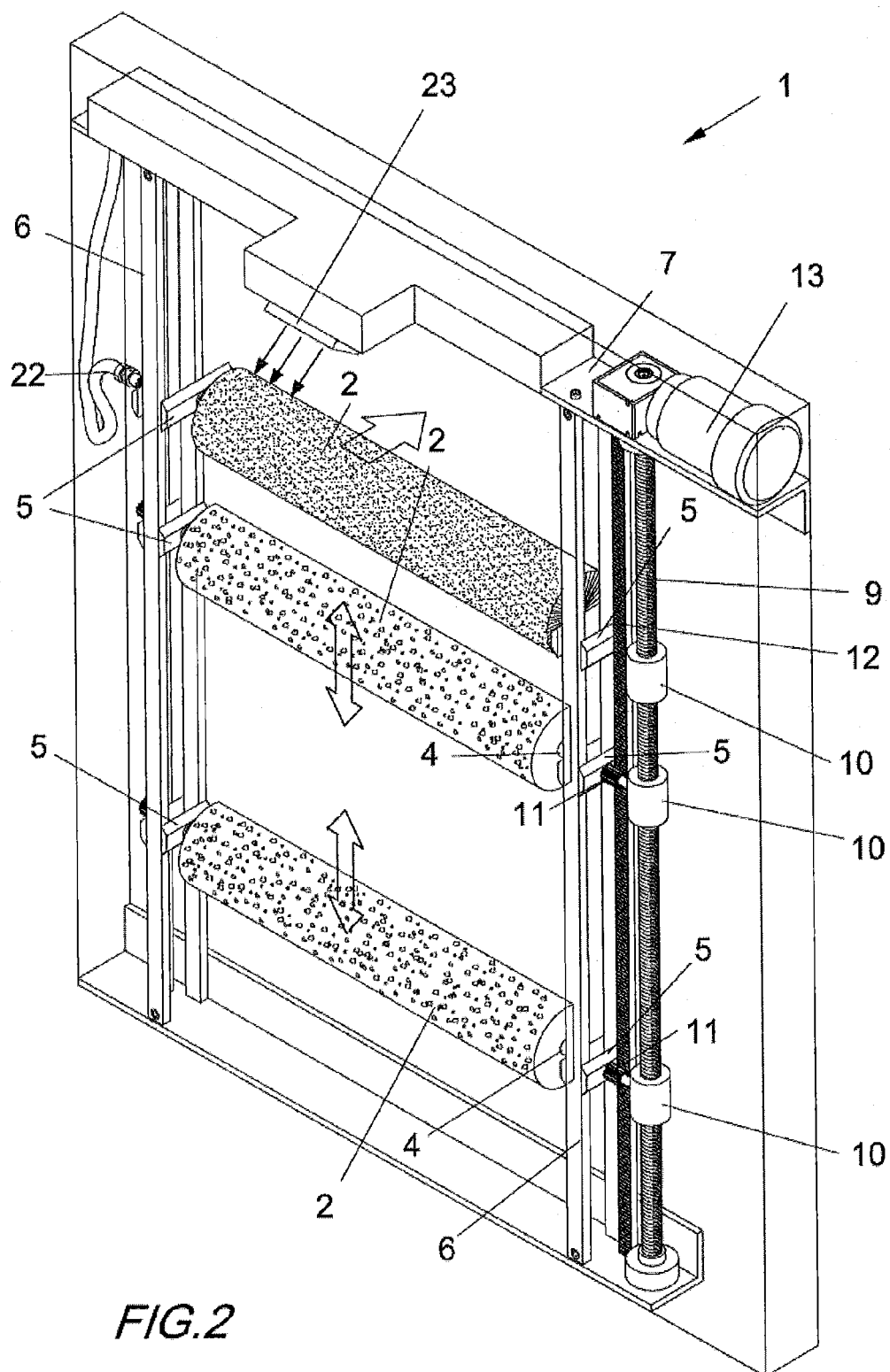


FIG. 2

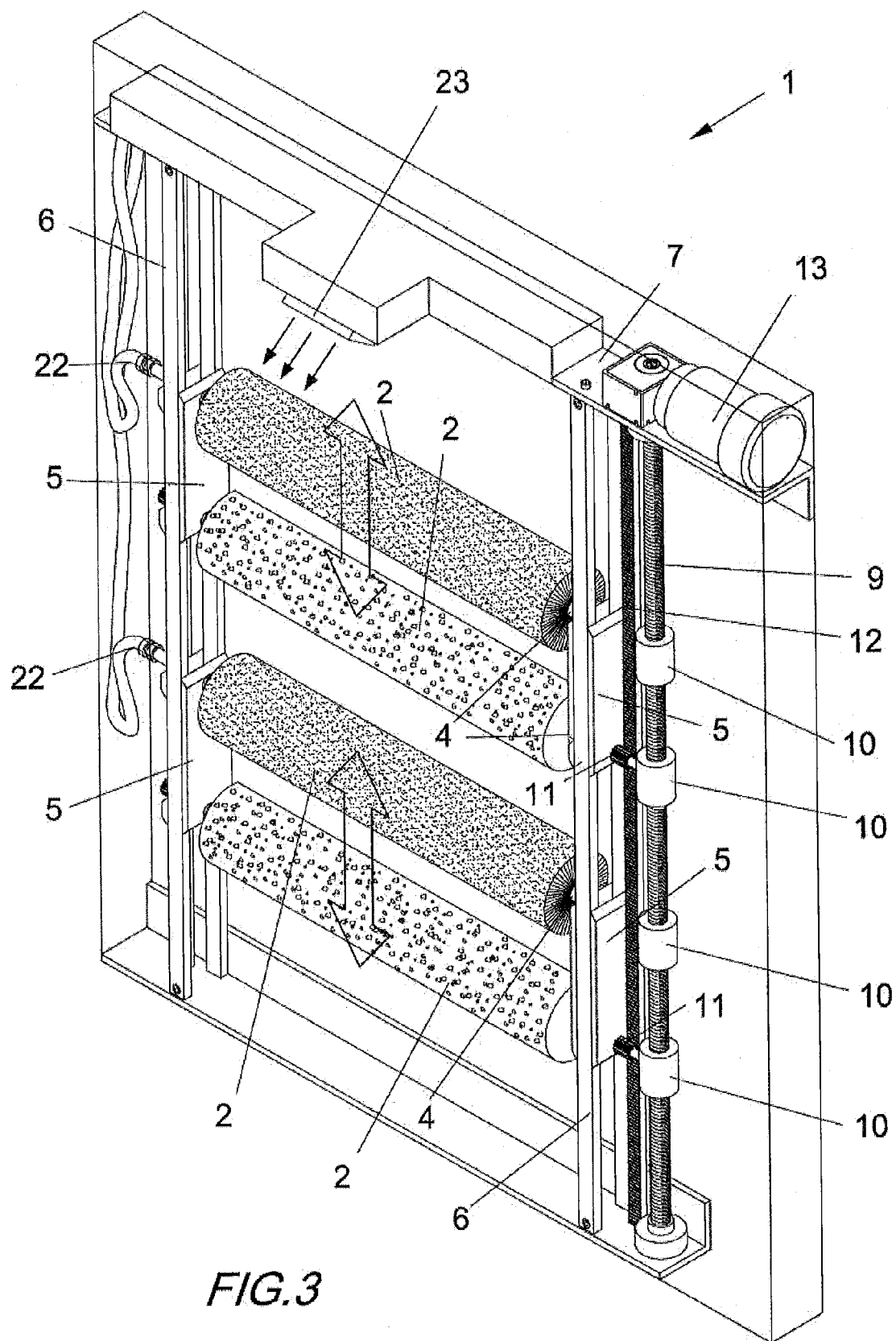
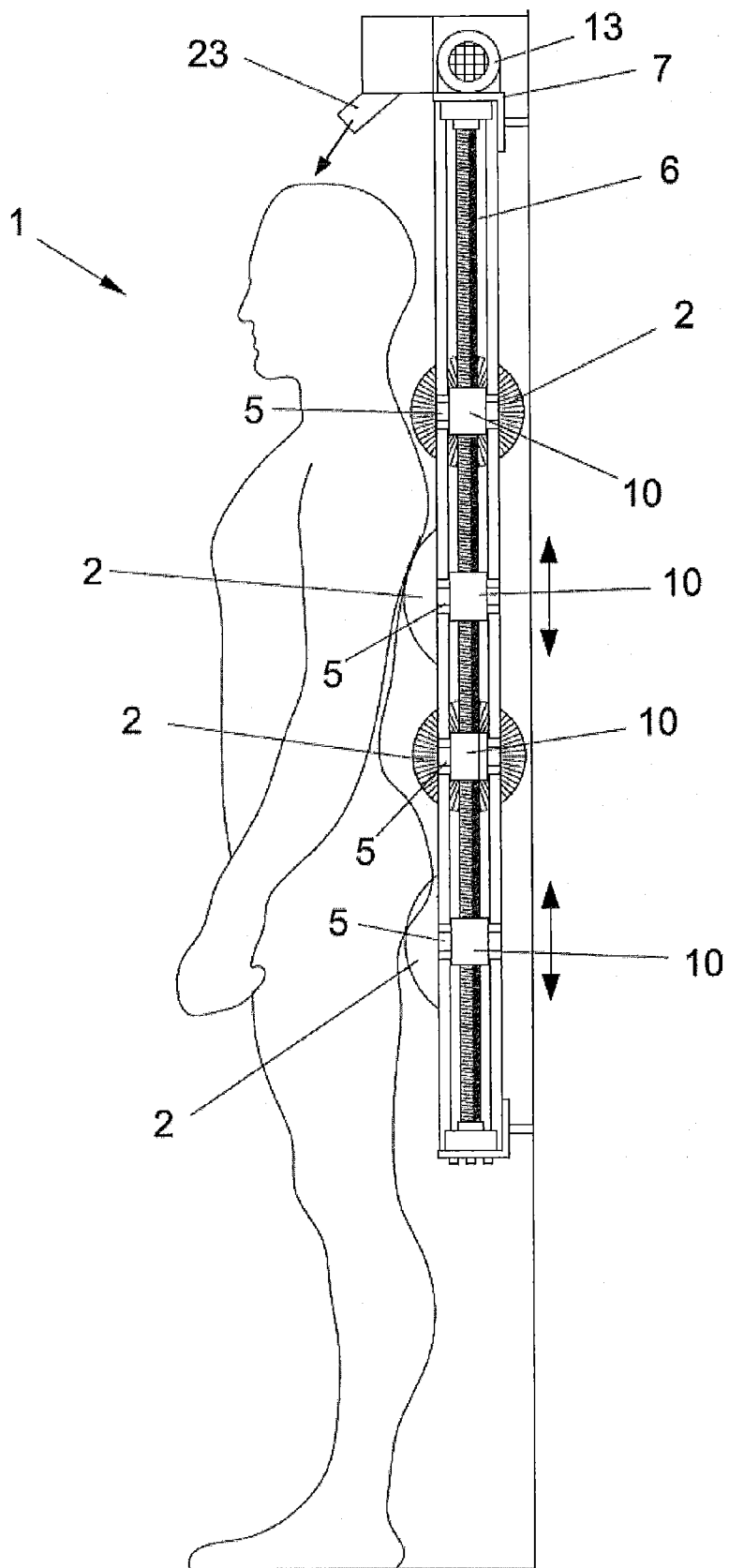


FIG. 3

FIG.4





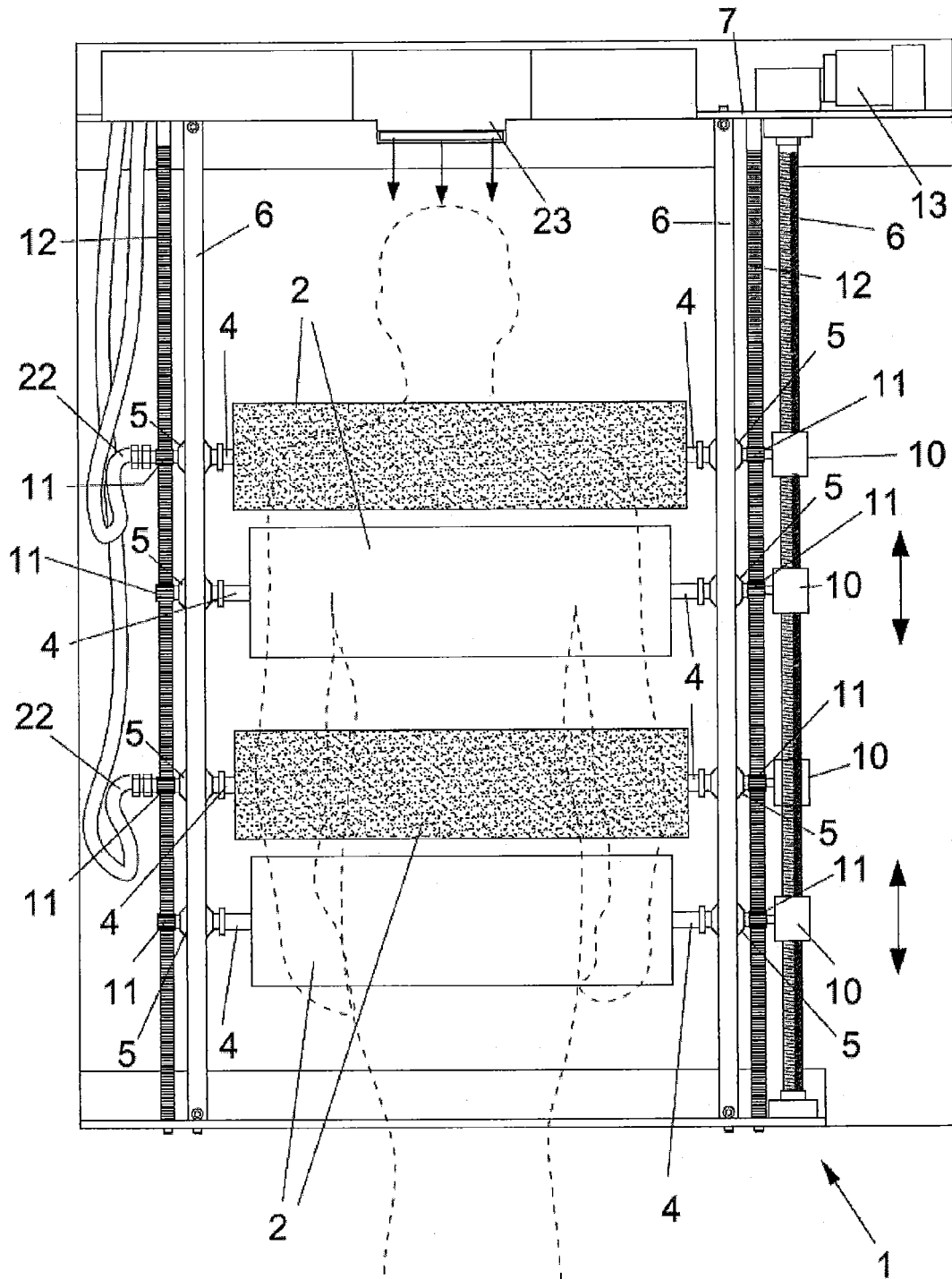


FIG.5

