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(54) **A device of rotable duster for soft precise dusting.**

(57) A device for dusting small objects, like medicine boxes, small fancy articles, trinkets which may be placed in a glass show-case, and reaching corners and places which are not easily accessible, consisting in a handle 1 containing a small electric motor 2 fed by the network through a cable 3 and/or incorporated primary or secondary rechargeable electric batteries 4, such as to place a cylindrical element 7 or 7' into rotation, said element being hollow or solid, rigid or flexible, connected by pressure, screw or jointing to an axis 6 projecting from said motor 2, and thus also determining the rotation of a duster 8, liable at the end thereof with element 7, which duster 8 will take away the dust.

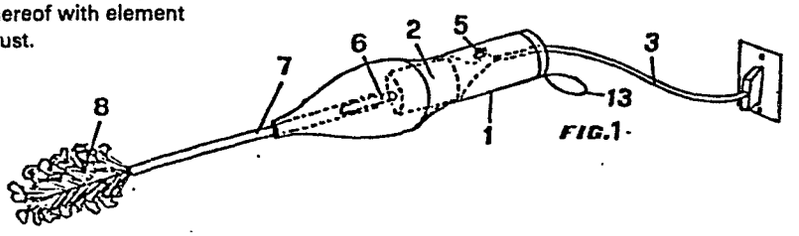

FIG.1

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A DEVICE OF ROTABLE DUSTER FOR SOFT PRECISE DUSTING

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The present invention concerns a device for dusting objects and rooms with softness and precision, comprising a rotable duster operated by an electric motor incorporated in the handle of said device.

It is already well known that the devices used to take away atmospheric dust from objects, furniture pieces, surfaces and similar always consisted in feather dusters out of animal or vegetal materials.

Furthermore, to meet particular requests of deeper cleaning, vacuum cleaners of various kinds have recently been realized, provided with a motor which determines a depression at one end of the suction pipe, and with a dust container.

All said devices, however, have prooved to be inadequate to dust very light and small objects, eventually placed into exhibitors, like medicine boxes, small fancy articles and trinkets placed in glass show-cases and similar, which - even if requesting continuous care - would thereby be removed, upset and also ruined by the too hard and heavy contact with the known devices.

It is the aim of the present invention to realize a device which will eliminate all above-mentioned inconveniences.

The present invention, as it is characterized in the attached claims, solves the problem of softness taking away the dust placed on any kind of light object and also in places difficult to reach like corners, of various kinds. By using a device of this kind the following advantages are obtained: objects placed on any surface can be dusted without removing the same, places difficult to reach like glass show-cases can be freed from the dust, inner parts of the vehicles up to the most hidden parts for traditional cleaning will be dusted.

This aim will be reached by the device according to the present invention, comprising a handle - which eventually may be of anathomic conformation - containing an electric motor operated - by means of a feeding cable - by the network and/or by primary and/or rechargeable, incorporated batteries, so as to determine, with an eventual interposition of a speed-reducer, the rotation of an axis on which a cylindrical supporting element is inserted by pressure or in any other way, and on the other end the duster for the elimination of the dust, and in this way the duster will be put into rotation.

The present invention will be described more in detail according to the attached drawings, showing some preferred embodiments.

Figure 1 shows in a perspective view the device according to the present invention, wherein the inner components are shown in transparency.

Figure 2 shows a lateral section of a further embodiment of said device, provided with rechargeable batteries.

Figure 3 shows a long section of another embodiment of said device with a rotable axis being non-coaxial with the cylindrical element carrying the duster.

Figures 4 and 5 show long sections of respectively, an embodiment provided with a dust-aspirator and a further embodiment provided with an eventually removeable parabola lamp for the concentration of the light beam.

The figures show a device for soft, precision dusting, mainly comprising a handle 1, eventually with an anathomic conformation, containing an electric motor 2 operated by network current through cable 3 and/or by electric batteries 4, so as to determine, with the eventual interposition of a speed-

reducer, the rotation of axis 6 projecting from the front end, and of cylindrical element 7 (hollow or solid), inserted by pressure on the end of said axis 6 and liably carrying at the end thereof duster 8.

According to the present invention said handle 1 is provided with a switch 5 with stable or labile position, of the pushbutton kind, or of both, and ends up with rotating axis 6, keyed on the electric motor 2 axis.

In a different embodiment according to figure 3, the axis projecting from the motor may operate, by means of interposition of transmission element 12, non-coaxial axis 6' carrying cylindrical element 7 and duster 8.

In a further embodiment, cylindrical element 7 may be connected to the end of axis 6 by screw, joint, bayonet or in any other known way.

Said duster 8 may be realized in different forms and dimensions and with different components, according to the requests, with feathers, delicate texile or syinthetic fibres, also mixed, or in any case assembled in the most adequate form.

In the embodiment according to figure 4, the device according to the present invention proves able to perform, beyond the operation already described, also and contemporarily a function of aspirator of the dust removed by duster 8 through hollow cylindrical element 7', due to the presence of a fan or similar, housed in the handle 1 body, with an incorporated or outer dust container.

A further selection of the inventions functions may request the insertion, at the end of handle 1, sideways or in any proper position, of a small lamp 10 with an adequate parabola 11 for the concentration of the light beam which may assist the operator in the control of the operation of said device, where there should be lack of light.

An eventual, further variant of the present invention - of greater dimensions than all precedent - will be provided with a jack for the connection with the electric circuit of a vehicle, so as to provide for the reoving of the dust in vehicles with a consequent long lasting autonomy in working.

It is provided that the device handle-motor-battery may comprise a series of cylindrical elements 7 with dusters 8 of different kinds, which can be interchangeable and inserted at free choice onto motor axis 6.

In this case the device will be placed, separated from the various cylindrical elements, and toge = ther with the duster, into an appropriate contain er.

In another solution, the handle will be provided with and end eye 13 for hanging it up on an appro priate place.

It should be noted that cylindrical element 7, which on one side is connected to motor axis 6 and on the other side carries duster 8, may be, independently from the solid or hollow realization thereof, ac= cording to its function, rigid or flexible: the ri gidity allows a major power in eliminating the dust while the flexibility - which obviously induces a working at a lower angular speed - permits a grea= ter sensibility in working, which is the aim of the present invention.

It is possible to provide on the same motor axis a series of dusters of different dimensions and with cylindrical elements of different rigidity so as to cover the different requests of use.

The main feature of the functioning of the object according to the present invention os the one of replacing a manual alternative or partially rotat ing-alternative movement, produced by a rotation of the wrist, of an already well known means, by

a rotation movement, with the help of an eventual aspiration and deposit of the removed dust, which movement is always manually directed to that area requesting the elimination of the dust, but which performs the necessary work independently just requesting the manual intervention in the shifting of the device.

The result is a precise operation, manually directed, and with an extreme sensibility towards the object; the softness and the variety of the whole is out of doubt and well experienced, together with the variants in length and in flexibility and composition of the group carrying the duster.

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CLAIMS

1) A device for precise dusting comprising a handle 1 containing a small electric motor 2 operated by the current of a network through cable 3 and a switch 5 so as to determine the rotation of axis 6, characterized in that on said axis 6 hollow rigid cylindrical element 7 is inserted coaxially, liably carrying at one end duster 8 which will be placed into rotation.

2) A device for dusting according to claim 1, characterized in the presence, in handle 1, of rechargeable electric batteries 4.

3) A device for dusting according to claim 1 characterized in the presence, in handle 1, of primary electric batteries which will feed a 2 c.c. motor.

4) A device for dusting according to claim 1, characterized in the presence of a fill cylindrical element 7 inserted by joint pressure onto axis 6.

5) A device for dusting according to claim 1 characterized in the presence of a cylindrical element 7 of the flexible kind.

6) A device for dusting according to claim 1, characterized in that cylindrical element 7, carrying duster 8, is operated by axis 6 being non coaxial to the electric motor 2 axis by means of mechanical trasmission 12.

7) A device for dusting according to claim 1 characterized in the presence, in handle 1, of a fan 9 for suction, through hollow cylindrical element 7, of the dust removed by duster 8, collecting it in a coupled container.

8) A device for dusting according to claim 1 characterized in the coupling of handle 1 to a parabola 11 containing lamp 10 for concentrating the light in the badly illuminated working zone.

9) A device for dusting according to claim 1 characterized in that element 7 is screw-connected to axis 6.

10) A device for dusting according to claim 1, characterzied in that it is provided with a jack for the electric connection to the circuit of a vehicle so as to provide for the removal of the dust therein.

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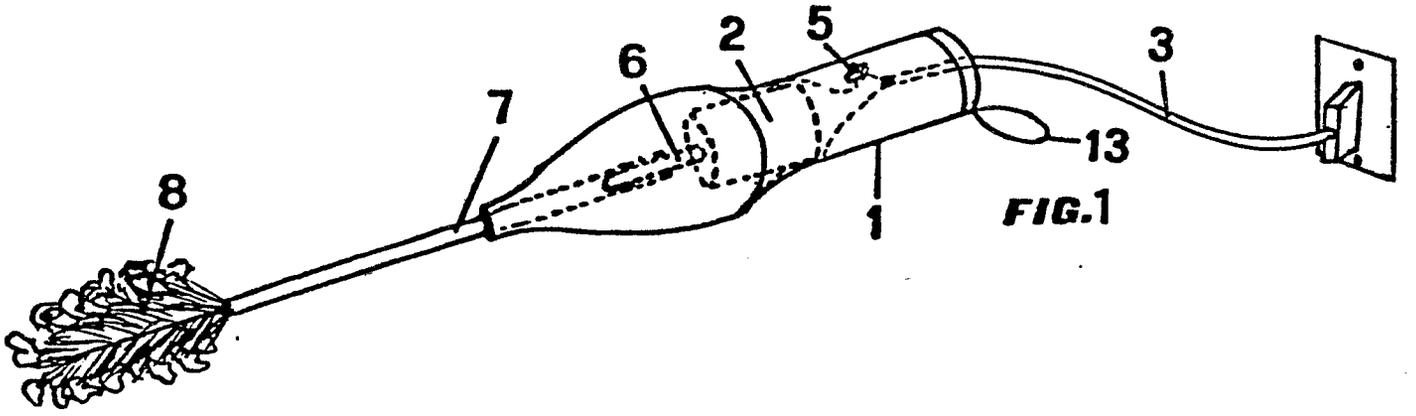

FIG.1

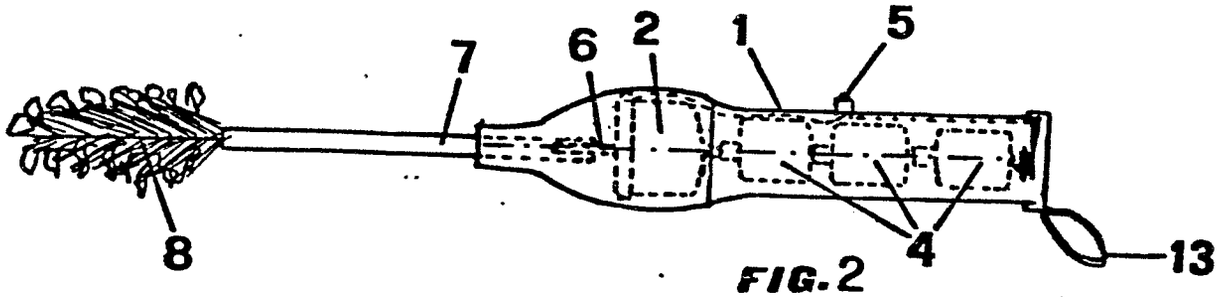

FIG.2

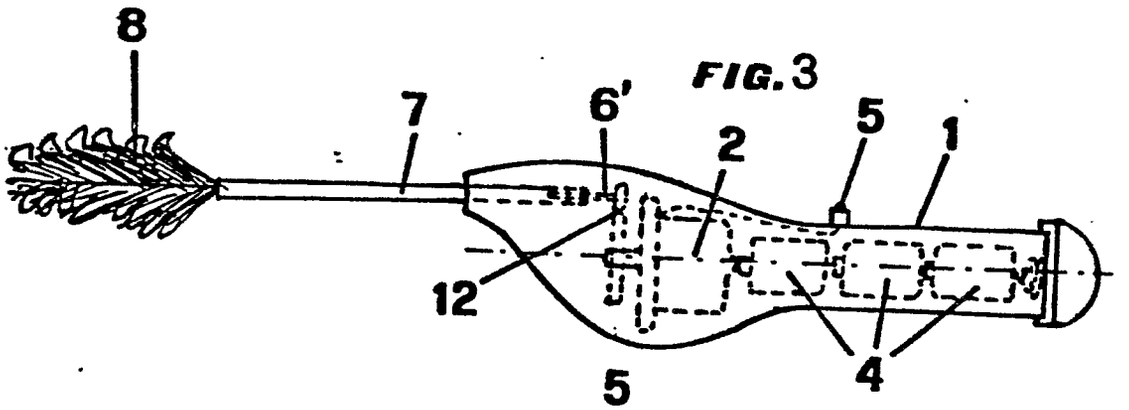

FIG.3

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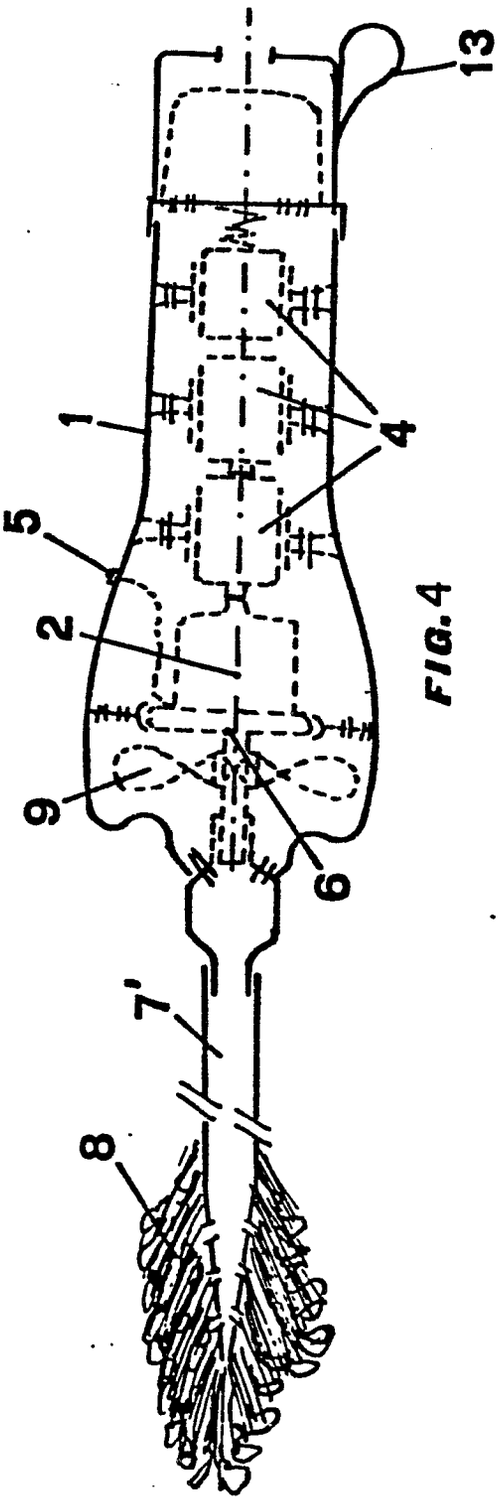

FIG.4

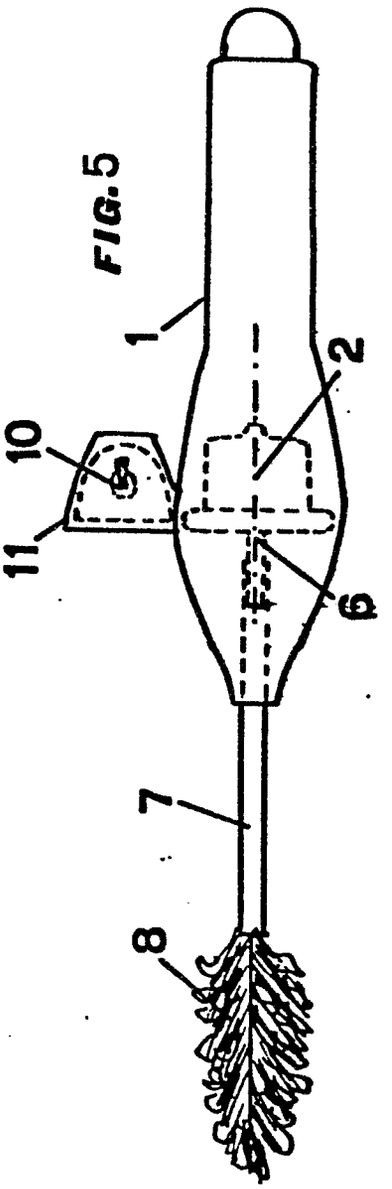

FIG.5

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EUROPEAN SEARCH REPORT

0167695
Application number

EP 84 83 0214

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl 4)
Y	US-A-1 694 257 (HAGOPIAN S.) * The whole document *	1	A 47 L 13/38 A 47 L 5/24 A 46 B 13/02
Y	US-A-3 106 732 (DAYTON C.A. et al.) * Column 1, lines 7-13, 40-50; column 2, lines 21-72; column 3, lines 1-54; column 4, lines 6-12; figures 1-4 *	1	
A		3,4,6	
A	CH-A- 580 417 (GRUBER-MEINARDI L.) * Column 1, lines 1-4, 17-58; claims, lines 30-47; figures 1,4 *	1,4,9	
A	CH-A- 555 667 (GERMAN P.) * Column 1, lines 20-42; figure 1 *	1,4	TECHNICAL FIELDS SEARCHED (Int. Cl.4) A 47 L A 46 B
A	US-A-1 993 215 (HOYT C.E. et al.)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26-03-1985	MUNZER E.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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