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(54) Manually operated device for cleaning brooms and the like

(57) This invention relates to a manually operated device for cleaning brooms or the like, comprising at least one surface (2) on which small sharp-edge particles are arranged which do not experience electrostatical effects, said surface being rubbed up and down on the bristles of the brooms to remove waste, threads and/or hair that are entangled and/or stick thereto because of the statical electricity generated by friction between the bristles and/or the surface to be cleaned. Said rough surface is an area coated with glass paper or emery cloth (2), whose small, hard, close grains act on the bristles of the brooms as a comb with very close teeth that get not entangled in any knotted or curled bristle because of the small size of its teeth. Down, threads, even long hair, and dirt particles removed from the broom does not stick to the rough surface (2) as the abrasive grains of the latter have a small height so that they cannot trap said down.

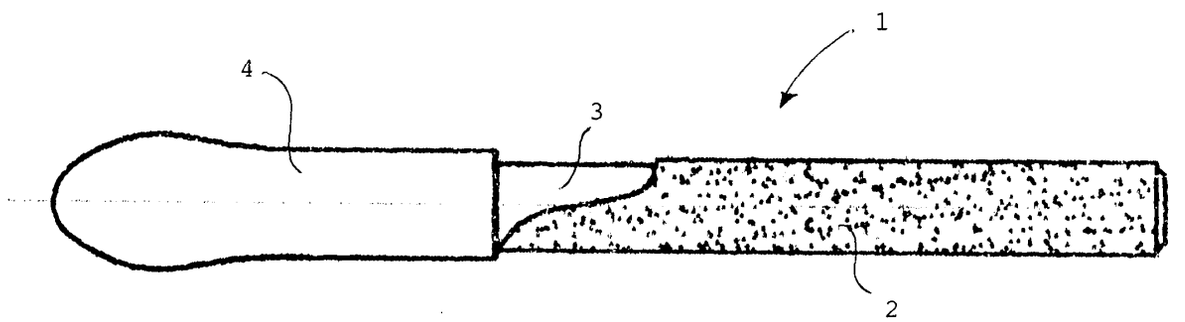

FIG. 1

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Description

[0001] The present invention relates to a device for cleaning brooms and similar items from dirt that usually sticks persistently to the bristles of the brooms.

[0002] It is well known that after the cleaning of the floors, particularly in domestic environments, not all of the dirt gathered together by the broom is collected in the dustpan for the sweepings. In fact, down, threads, and electrically charged particles or statical-charge sensitive particles get caught up or stick in the bristles of the broom which charge electrostatically because of their friction both against each other and the surfaces to be cleaned, thus giving rise to the above-mentioned sticking.

Usually, such rests are either removed manually or by beating the broom against the railings of balconies or terraces, thus causing troubles to residents or any passer-by in the area down below.

"Combs" for brooms are also known that do not solve in a satisfactory way the problems mentioned above; moreover the bristles of the brooms often get tangled or curl so that the use of such combs is inhibited.

This invention seeks to overcome the above-mentioned problems by providing a manually operated device provided with a surface coated with glass paper or emery cloth capable of removing quickly and reliably waste, yarns, and even long hair that usually get caught up in the bristles of the brooms.

According to a peculiar feature of the invention the manually operated device that will be hereinafter referred to as "brush" has a portion coated with glass paper or emery cloth provided with very small, close grains acting on the bristles of the brooms as a comb with very close teeth that get not entangled in any knotted or curled bristle.

Advantageously, the down removed from the broom does not stick to the brush as the abrasive grains of the latter have a small height so that they cannot trap down and threads, even long hair, and dirty particles either.

Still another advantage of the invention consists in that the glass paper or emery cloth does not disperse the dirt removed from the broom. In fact, as the glass paper get not entangled in the bristles, the dirt comes off and falls down uniformly. Moreover the down pads does not break or fray so that the gathered dirt does not spread anymore.

[0003] A better understanding of the invention will result from the following detailed description with reference to the accompanying Figure 1 that shows a preferred embodiment thereof only by way of a not limiting example.

[0004] With reference to Figure 1, the manually operated device or brush 1 described hereinafter includes essentially a solid or hollow rod 3 having a preferably cylindrical shape without corners coated outside by glass paper or emery cloth 2, and a handle 4 integral with said cylindrical rod 3.

In the preferred embodiment described, the granulometry of the glass paper 2 is preferably middle-fine. Such glass paper or emery cloth 2 may be stuck directly to rod 3 or secured thereto in any way such as in a removable way, in order to allow for its replacement.

Alternatively, rod 3 can be removed from handle 4 and replaced by a new rod coated by a new glass paper.

A second embodiment of the invention not shown in the Figure has a handle 4 provided with a rigid stem extending longitudinally therefrom and around which abrasive glass paper 2 is rolled up so as to give it enough rigidity.

It is self-evident from the foregoing that handle 4 and rod 3, whether hollow or solid, must be made of a material which is rigid enough to allow the device of the invention to be used as a brush on the bristles of the brooms to be cleaned. The material(s), which handle and rod are made of, can be the same or different, and the device may be manufactured in one piece.

Ultimately, according to a further embodiment of the invention, abrasive materials or grains are glued or otherwise secured directly to the outside surface of the rod.

It should be appreciated that the granulometry of the abrasive grains may vary as a function of the application of the invention. The grain is preferably middle-fine, in case of domestic use, or raw for industrial use such as for cleaning workshop besoms which catches the working chips of the machine tools. It should be further appreciated that the glass paper or emery cloth does not experience electrostatical effects. Therefore, the electrostatically charged dirty particles removed from the bristles come off easily without problems and fall down.

It is self-evident how useful the brush of the invention may be. Moreover its use is advantageous in terms of time for cleaning domestic and/or working rooms because of the rapidity and simplicity by which the broom can be cleaned and kept fully effective. The present invention has been described and illustrated according to some preferred embodiments thereof, however, it should be understood that those skilled in the art can make equivalent modifications and/or replacements without departing from the scope of the present industrial invention.

Claims

1. A manually operated device for cleaning brooms and the like, characterized in that there is provided at least one surface (2) on which small sharp-edge particles are arranged which do not experience electrostatical effects, said surface being rubbed up and down on the bristles of the brooms to remove waste, threads and/or hair that are entangled and/or stick thereto because of the statical electricity generated by friction between the bristles and/or the surface to be cleaned.

2. The device of claim 1, characterized in that said

rough surface is an area coated with glass paper or emery cloth (2), whose small, hard, close grains act on the bristles of the brooms as a comb with very close teeth that get not entangled in any knotted or curled bristle because of the small size of its teeth.

3. The device of the preceding claims, characterized in that down, threads, even long hair, and the dirt particles removed from the broom does not stick to the rough surface (2) as the abrasive grains of the latter have a small height so that they cannot trap said down.

4. The device of the preceding claims, characterized in that said glass paper or emery cloth (2) does not disperse the dirt removed from the broom as the glass paper or emery cloth (2) removes the dirt without getting entangled in the bristles so that the dirt comes off and falls down uniformly.

5. The device of the preceding claims, characterized in that as glass paper or emery cloth (2) does not experience electrostatical effects, the electrostatically charged dirty particles removed from the bristles come easily off glass paper (2) without problems and fall down quickly.

6. The device of the preceding claims, characterized in that there is provided a solid or hollow rod (3) having a surface coated outside by glass paper or emery cloth (2), and a handle (4) integral with said cylindrical rod (3).

7. The device of claim 6, characterized in that said paper or emery cloth (2) is secured directly to rod (3).

8. The device of claim 6, characterized in that said glass paper or emery cloth (2) is secured to rod (3) in a removable way in order to allow it to be replaced.

9. The device of claim 6, characterized in that rod (3) can be removed from handle (4) and replaced by a new rod coated by a new glass paper or emery cloth (2).

10. The device of one or more of claims 1 to 5, characterized in that there is provided a handle (4) provided with a rigid stem extending longitudinally therefrom and around which abrasive glass paper or emery cloth (2) is rolled up so as to give it enough rigidity.

11. The device of one or more of claims 6 to 10, characterized in that handle (4) and/or rod (3), whether hollow or solid, are made of a material which is rigid enough to allow them to be used as a brush on the bristles of the brooms to be cleaned.

12. The device of claim 6 or 9, characterized in that as an alternative to glass paper or emery cloth (2), the abrasive materials are glued or otherwise secured directly to the outside surface of rod (3).

13. The device of the preceding claims, characterized in that the granulometry of the glass paper or emery cloth (2) is middle-fine for domestic use or raw for industrial use.

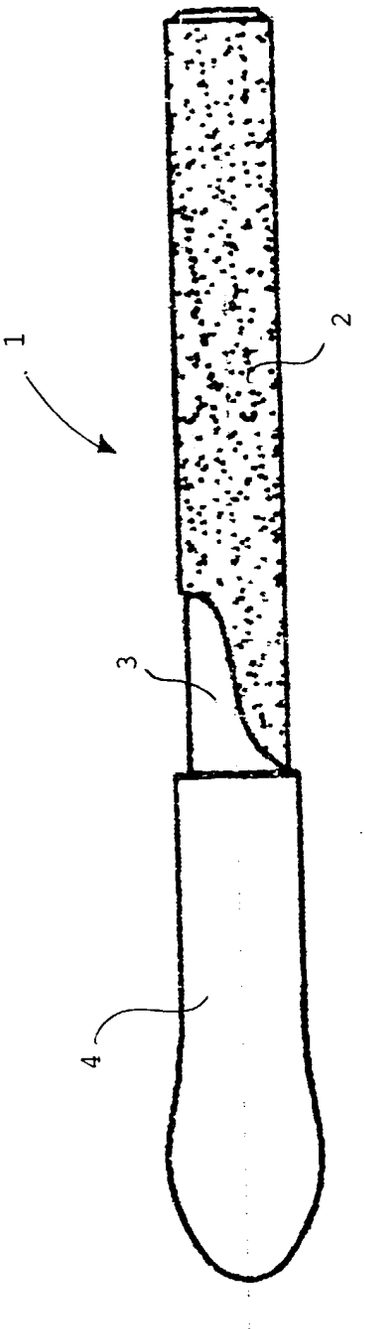

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 99 83 0434

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.7)
X	US 2 763 968 A (BURNS P.M.) 25 September 1956 (1956-09-25) * the whole document * * figures 1-3 *	1-6, 8-11,13	A46B17/06 B24D15/02
X Y	US 5 168 663 A (KLOCKE KENNETH J) 8 December 1992 (1992-12-08) * abstract * * column 1, line 36 - line 54 * * column 2, line 64 - column 3, line 51 * * figures 1-3 *	1-5,7,8, 11-13 6	
Y	DE 663 135 C (CLAREN REINHOLD) 7 July 1938 (1938-07-07) * page 2 * * figures 1-3 *	6	
A	US 5 802 657 A (NOGUES JUANA M ET AL) 8 September 1998 (1998-09-08) * abstract; figures *	1-13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A46B B24D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	6 March 2000	Ottesen, R

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 99 83 0434

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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06-03-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2763968 A	25-09-1956	NONE	
US 5168663 A	08-12-1992	NONE	
DE 663135 C		NONE	
US 5802657 A	08-09-1998	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82