



(11)

EP 4 137 004 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 153(4) EPC

(43) Date of publication:
22.02.2023 Bulletin 2023/08

(51) International Patent Classification (IPC):
A46B 7/04 (2006.01)

(21) Application number: **21733038.0**

(86) International application number:
PCT/KR2021/007904

(22) Date of filing: **23.06.2021**

(87) International publication number:
WO 2022/270652 (29.12.2022 Gazette 2022/52)

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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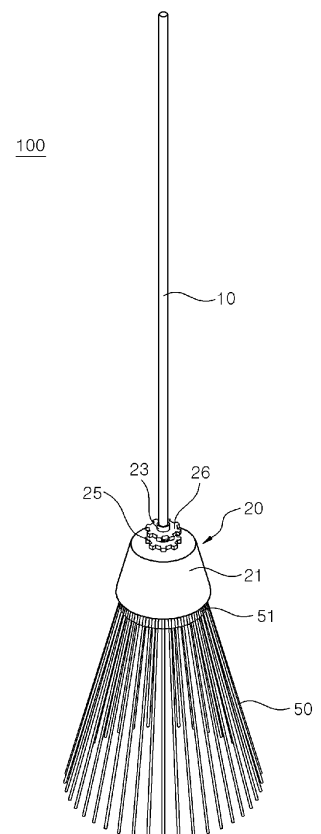
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(54) **CLEANING BROOM HAVING REPLACEABLE BRISTLES**

(57) The present invention relates to a broom for cleaning, which includes a handle part that is held by hands, a bristle part including a plurality of bristles, and a connection part for connecting the handle part and the bristle part. The connection part includes: a first housing in which an accommodation portion having one opened side is formed therein; and a second housing inserted to the accommodation portion. The bristle part is inserted to an insertion space formed by an inner wall of the first housing and an outer wall of the second housing, and as the inner wall of the first housing and the outer wall of the second housing become adjacent to each other, the bristle part inserted to the insertion space is pressed and fixed.

[FIG. 1]



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Description**TECHNICAL FIELD**

[0001] The present invention relates to a broom for cleaning with replaceable bristles.

BACKGROUND ART

[0002] A broom for cleaning is an instrument used by people for a long period of time. People use the broom for cleaning to sweep a yard or remove snow.

[0003] The broom for cleaning has a simple configuration. The broom for cleaning includes a handle part that is held by hands, a bristle part including a plurality of bristles, and a connection part for connecting the handle part and the bristle part.

[0004] The broom for cleaning using plastic has an advantage in terms of easy manufacturing and excellent durability. This reason increases usage of the plastic broom for cleaning instead of using the typical broom for cleaning made of a branch of a tree or a plant stem.

[0005] However, the plastic is not degradable in a natural condition for a long period of time and a main factor for environmental destruction. The need for reducing usage of plastic is required to resolve environmental problems. However, the environment-friendly bristles are easily worn and poor in durability in comparison with the plastic bristles. That is, the broom for cleaning using the environment-friendly bristles has a short lifespan in comparison with the broom for cleaning using the plastic bristles. When the environment-friendly bristles are damaged, the need for buying the entire broom for cleaning is required although the handle part and the connection part of the broom for cleaning are working properly.

[0006] Korean Registered Patent No. 10-1875096 suggests the broom using the environment-friendly bristles such as tree branch bristles or plant stem bristles in order to reduce usage of plastic causing the environmental problems in the broom for cleaning. However, Korean Registered Patent No. 10-1875096 uses the adhesive for fixing the bristles. That is, even the broom for cleaning disclosed in the Korean Registered Patent No. 10-1875096 requires to buy the entire broom for cleaning when the bristles are damaged although the handle part and the connection part of the broom for cleaning are working properly.

[0007] Thus, new broom for cleaning to resolve the above problems is required.

DISCLOSURE OF THE INVENTION**TECHNICAL PROBLEM**

[0008] The present invention provides a broom for cleaning with replaceable bristles, which uses an environment-friendly bristles and from which a user easily replace the environment-friendly bristles.

[0009] Other objects that are not specified in the present invention may be additionally considered within a range derived from the detailed description below and effects thereof.

TECHNICAL SOLUTION

[0010] An embodiment of the present invention provides a broom for cleaning, which includes a handle part that is held by hands, a bristle part including a plurality of bristles, and a connection part for connecting the handle part and the bristle part, the connection part includes: a first housing in which an accommodation portion having one opened side is formed therein; and a second housing inserted to the accommodation portion, the bristle part is inserted to an insertion space formed by an inner wall of the first housing and an outer wall of the second housing, and as the inner wall of the first housing and the outer wall of the second housing become adjacent to each other, the bristle part inserted to the insertion space is pressed and fixed.

[0011] In an embodiment, a plurality of bristles constituting the bristle part may be bound with each other by a connection band or a connection string.

[0012] In an embodiment, as at least a portion of the connection band or the connection string is inserted to the insertion space when the bristle part is inserted to the insertion space, and the inner wall of the first housing and the outer wall of the second housing become adjacent to each other, at least a portion of the connection band or the connection string inserted to the insertion space may be pressed.

[0013] In an embodiment, a coating layer for increasing a friction force or a projection for pressing the bristle part may be formed on the inner wall of the first housing or the outer wall of the second housing.

[0014] In an embodiment, a connection bar passing through the first housing and coupled to the handle part may be formed on the second housing, and as a thread is formed on an outer surface of the connection bar, the first housing may be screw-coupled to the connection bar.

[0015] In an embodiment, the broom may further include a coupling screw passing through the first housing and the second housing and screw-coupled to a coupling hole defined in one end of the handle part.

[0016] In an embodiment, the bristle part may be environment-friendly bristles made of a branch of a tree or a plant stem.

[0017] In another embodiment of the present invention, a broom for cleaning includes a handle part that is held by hands, a bristle part including a plurality of bristles, and a connection part for connecting the handle part and the bristle part, the connection part includes: a first housing in which a first accommodation portion having one opened side is formed therein; at least one connection housing which is inserted to the first housing and in which a second accommodation portion having one opened

side is formed therein; and a second housing inserted to the second accommodation portion, the bristle part is inserted to an insertion space formed by an inner wall of the first housing and an outer wall of the connection housing, an insertion space formed by an inner wall of the connection housing and an outer wall of the second housing, and an insertion space formed by an inner wall of one connection housing and an outer wall of the other connection housing, and the bristle part inserted to the insertion spaces is pressed and fixed as the inner wall and the outer wall, which constitute the insertion space, become adjacent to each other.

ADVANTAGEOUS EFFECTS

[0018] When the environment-friendly bristles of the broom for cleaning according to an embodiment of the present invention is worn or broken during usage, the user may easily replace the environment-friendly bristles with new environment-friendly bristles. That is, since the bristles are replaceable according to an embodiment of the present invention, the need for buying entire broom for cleaning although the handle part and the connection part are properly working is not required.

[0019] Although effects are not considered herein, the effects described in this specification and their provisional effects, which are expected by the technical features of the present invention, may be considered as the effects described in this specification.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

FIG. 1 is a schematic perspective view illustrating a broom for cleaning according to an embodiment of the inventive concept.

FIG. 2 is a schematic exploded perspective view illustrating the broom for cleaning according to an embodiment of the present invention.

FIG. 3 is a schematic cross-sectional view illustrating the broom for cleaning according to an embodiment of the present invention.

FIG. 4 is a schematic reference view illustrating a state in which a bristle part of the broom for cleaning is unrolled according to an embodiment of the present invention.

FIG. 5 is a schematic reference view illustrating a state in which the bristle part of the broom for cleaning is rolled for easy carriage according to an embodiment of the present invention.

FIGS. 6 and 7 are schematic enlarged view illustrating portion A of FIG. 3.

FIG. 8 is a schematic cross-sectional view illustrating a broom for cleaning according to another embodiment of the present invention.

FIG. 9 is a schematic cross-sectional view illustrating a broom for cleaning according to still another em-

bodiment of the present invention.

FIG. 10 is a schematic cross-sectional view illustrating the broom for cleaning according to still another embodiment of the present invention.

[0021] The attached drawings are presented for purposes of explanation only, and the technical scope of the present invention is not limited thereto.

MODE FOR CARRYING OUT THE INVENTION

[0022] Hereinafter, features of the present invention and effects thereof according to various embodiments will be described with reference to the accompanying drawings. In the following description of the present invention, a detailed description of known functions and configurations incorporated herein will be omitted to avoid making the subject matter of the present invention unclear.

[0023] FIG. 1 is a schematic perspective view of a broom for cleaning (hereinafter, referred to as a cleaning broom) according to an embodiment of the present invention, FIG. 2 is a schematic exploded perspective view of the cleaning broom according to an embodiment of the present invention, and FIG. 3 is a schematic cross-sectional view of the cleaning broom according to an embodiment of the present invention.

[0024] A cleaning broom 100 according to an embodiment of the present invention includes a handle part 10 held by hands, a bristle part 50 including a plurality of bristles, and a connection part 20 for connecting the handle part 10 and the bristle part 50.

[0025] The handle part 10 is a bar that is long in one direction and made of wood in the present invention. The handle part 10 may have a length that is varied according to purposes. That is, the handle part has a great length when used at the outside such as a road, a yard, and a square, but has a relatively small length corresponding to a waist height of a person in case of indoor usage.

[0026] The bristle part 50 is a portion for sweeping an object to be cleaned and has a structure in which a plurality of bristles form a bundle. Each of the bristles has a thin and long shape having a length of several tens cm and a thickness of several mm. Environment-friendly bristles made of a branch of a tree or a plant stem may be used as the bristles in the present invention.

[0027] Particularly, the present invention is characterized by using a branch of a coconut palm tree as the bristles. There are three advantages in using the branch of the coconut palm tree.

[0028] First, the branch of the coconut palm tree is environment-friendly. When plastic bristles are used as the bristles of the cleaning broom, the cleaning broom may be easily and conveniently manufactured. However, the plastic bristles cause environmental pollution. Since the branch of the coconut palm tree is absolutely environment-friendly and also has elasticity greater than other materials, the cleaning broom may be easily and con-

veniently manufactured by a unique coupling structure of the present invention.

[0029] Second, the coconut tree is suitable to be used as the bristles in that the coconut tree has a greater wear resistance than other kinds of trees. That is, since a lespedeza bicolor or a bamboo has a low wear resistance, when bristles made of the lespedeza bicolor or the bamboo is used for a certain period of time, the bristles has a short lifetime because a portion contacting the ground is quickly worn. However, since the coconut tree has the great wear resistance, bristles made of the coconut tree may be used for a sufficient period of time.

[0030] Third, the above-described coconut tree has excellent elasticity in comparison with other trees. The bristles used in the cleaning broom are required to be easily bent and simultaneously maintain an elastic tension more than a predetermined level. That is, when a user pushes the cleaning broom to contact the ground, a contact area with the ground may increase as the bristles are bent, and the bristles in a pressed state may push the ground by an elastic force thereof to easily sweep an object to be processed. However, when the bristles have an excessive strength, since the bristles are not easily bent and restored, a cleaning work is hard, and a cleaning efficiency decreases. The coconut tree material has the wear resistance and the elasticity, i.e., has an optimized condition to be used as the bristles.

[0031] Also, since the coconut tree is grown in a broad range of South-East Asian region such as the Philippines and Indonesia, the coconut tree has an economical advantage in comparison with the bamboo, the lespedeza bicolor, and even the plastic. The above-described advantages are reasons why the coconut tree material is used as the bristles in the present invention.

[0032] However, although the branch of the coconut palm tree is used as the bristles, the environment-friendly bristles have insufficient durability and a short lifespan in comparison with the plastic bristles.

[0033] Thus, the cleaning broom 100 according to the present invention is configured such that the bristle part 50 is easily replaced by the user.

[0034] To this end, the connection part 20 includes a first housing 21 and a second housing 22. The connection part 20 may be made of a wood material. Alternatively, the connection part 20 may be made of a metal material to induce recycling.

[0035] An accommodation portion having one opened side is formed in the first housing 21. The first housing 21 may have a truncated cone shape having a diameter that gradually increases in a direction of the opened side. For example, the first housing 21 may have a shape such as a "cup".

[0036] The second housing 22 is inserted to the accommodation portion of the first housing 21. The second housing 22 may have a shape corresponding to the accommodation portion of the first housing 21.

[0037] When the second housing 22 is inserted to the accommodation portion of the first housing 21, an inser-

tion space is formed by an inner wall of the first housing 21 and an outer wall of the second housing 22.

[0038] The bristle part 50 is inserted to the insertion space. As the inner wall of the first housing 21 approaches the outer wall of the second housing 22, the bristle part 50 inserted to the insertion space is pressed.

[0039] Particularly, a connection bar 23 passing through the first housing and coupled with the handle part 10 is formed at the second housing 22 of the cleaning broom 100 according to an embodiment of the present invention. The handle part 10 is inserted to an end of the connection bar 23, and a thread 24 is formed on an outer surface of the connection bar 23. The end of the connection bar 23 has a cut portion in which a portion is cut to allow a diameter of the handle part 10 is expanded. When the handle part 10 is inserted to the end of the connection bar 23, a handle part fixing nut 26 may be coupled to the thread formed on the cut portion so that the cut portion presses the handle part 10.

[0040] The first housing 21 may be screw-coupled to the connection bar through the thread 24, or the first housing 21 may be pressed in a direction of the second housing 22 by using a first housing fixing nut 25. Also, as the first housing 21 is coupled deeply in the direction of the second housing 22, the inner wall of the first housing 21 approaches the outer wall of the second housing 22, and thus the bristle part 50 is further firmly fixed in the insertion space.

[0041] FIG. 4 is a schematic reference view illustrating a state in which the bristle part of the cleaning broom is unrolled according to an embodiment of the present invention, and FIG. 5 is a schematic reference view illustrating a state in which the bristle part of the cleaning broom is rolled for easy carriage according to an embodiment of the present invention.

[0042] The cleaning broom according to the present invention is intended for a user to easily replace the environment-friendly bristles. However, when each of the bristles is inserted to the insertion space one by one, the intention of the present invention is hardly achieved. Also, although the bristle part 50 is replaced by inserting the bristles to the insertion space one by one, the bristles have a high possibility of being easily separated from the insertion space during usage of the cleaning broom because sizes of the environment-friendly bristles are not constant.

[0043] The cleaning broom according to the present invention binds the plurality of bristles by using a connection band or a connection string 51 so that the user easily replaces the bristle part 50. As the connection band, an elastic material such as a rubber band may be used, or a cloth obtained by weaving silk yarns may be used. As the connection string, the elastic material such as the rubber band may be used, and the silk yarns may be used.

[0044] As described above, since the cleaning broom according to the present invention binds the plurality of bristles by using the connection band or the connection

string 51, the user may insert the bristle part 50 to the insertion space at once, and the bristle part 50 may be fixed as the inner wall of the first housing 21 approaches the outer wall of the second housing 22.

[0045] Particularly, when the bristle part 50 is inserted to the insertion space, at least a portion of the connection band or the connection string 51 may be inserted to the insertion space. That is, as at least a portion of the connection band or the connection string 51 inserted to the insertion space is pressed when the inner wall of the first housing 21 approaches the outer wall of the second housing 22, the limitation in which the bristles are easily separated from the insertion space during usage of the cleaning broom because the sizes of the environment-friendly bristles are not constant may be prevented.

[0046] A length L when the bristle part 50 is unrolled may be two times or more than a diameter of an end of the outer wall of the second housing 22. As described above, as the length L when the bristle part 50 is unrolled becomes two times or more than the diameter of the end of the outer wall of the second housing 22, the bristles may be further densely arranged.

[0047] When the bristle part 50 is rolled as in FIG. 5, easy storage and carriage are advantages.

[0048] FIGS. 6 and 7 are schematic enlarged view illustrating portion A of FIG. 3.

[0049] As described above, the environment-friendly bristles have a high possibility of being easily separated from the insertion space during usage of the cleaning broom because the sizes of the environment-friendly bristles are not constant. Thus, in the cleaning broom according to the present invention, a coating layer C1 increasing a friction force or a projection C2 for pressing the bristle part 50 is formed on an outer surface of the second housing 22 or an inner surface of the first housing 21. The coating layer C1 may be rubber coating or silicon coating. When the bristle part 50 includes the connection band or the connection string 51, the coating layer C1 or the projection C2 may press the connection band or the connection string 51.

[0050] FIG. 8 is a schematic cross-sectional view illustrating a cleaning broom according to another embodiment of the present invention.

[0051] Among components of a cleaning broom 200 according to another embodiment of the present invention, the same component as that of the cleaning broom 100 according to an embodiment will not be described.

[0052] In the cleaning broom 200 according to another embodiment of the present invention, a connection part 20 includes a first housing 21 in which a first accommodation portion having one opened side is formed therein, at least one connection housing inserted to the first housing 21 and in which a second accommodation portion having one opened side is formed therein, and a second housing 22 inserted to the second accommodation portion.

[0053] Here, a bristle part 50 is inserted to an insertion space formed by an inner wall of the first housing 21 and

an outer wall of the connection housing 25, an insertion space formed by an inner wall of the connection housing 25 and an outer wall of the second housing 22, and an insertion space formed by an inner wall of one connection housing 25 and an outer wall of the other connection housing 25, and the bristle part 50 inserted to the insertion spaces is pressed and fixed as the inner wall and the outer wall, which constitute the insertion space, become adjacent to each other.

[0054] That is, in the cleaning broom according to another embodiment of the present invention, two or more insertion spaces having different diameters are formed by the connection housing 250, and as the bristle part 50 is inserted to the two or more insertion spaces having different diameters, bristles of the cleaning broom are further densely arranged.

[0055] FIG. 9 is a schematic perspective view illustrating a cleaning broom according to still another embodiment of the present invention, and FIG. 10 is a schematic cross-sectional view illustrating the cleaning broom according to still another embodiment of the present invention.

[0056] Among components of a cleaning broom 300 according to still another embodiment of the present invention, the same component as that of the cleaning broom 100 according to an embodiment will not be described.

[0057] The cleaning broom 300 according to still another embodiment may further include a coupling screw 60 passing through a first housing 21' and a second housing 22' and screw-coupled to a coupling hole defined in one end of a handle part 10'.

[0058] When the coupling screw 60 is tightened, an inner wall and an outer wall, which constitute an insertion space, become adjacent to each other, and accordingly, the bristle part inserted to the insertion space is pressed and fixed.

[0059] The description of the present invention is intended to be illustrative, and those with ordinary skill in the technical field of the present invention pertains will be understood that the present invention can be carried out in other specific forms without changing the technical idea or essential features. Hence, the real protective scope of the present invention shall be determined by the technical scope of the accompanying claims.

Claims

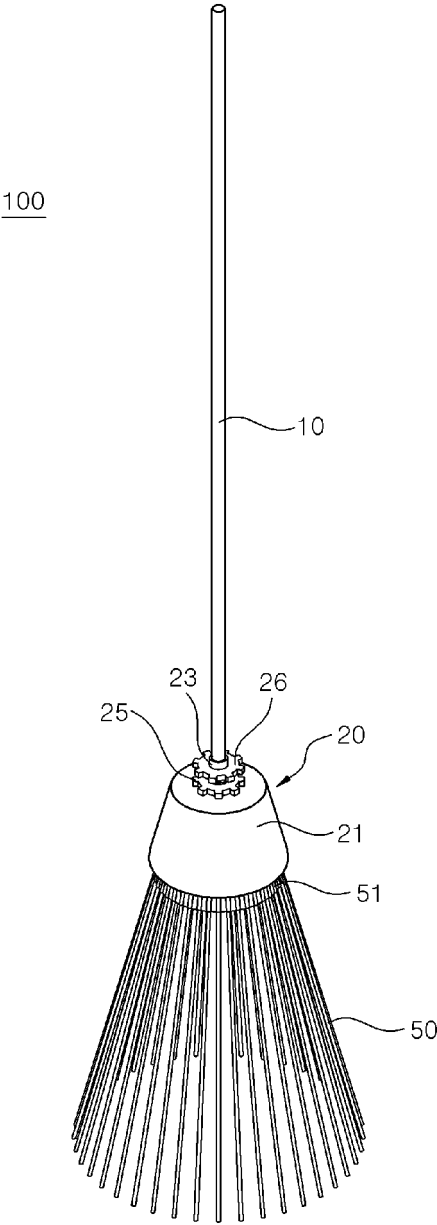
1. A broom for cleaning, comprising a handle part that is held by hands, a bristle part comprising a plurality of bristles, and a connection part configured to connect the handle part and the bristle part, wherein the connection part comprises:

a first housing in which an accommodation portion having one opened side is formed therein; and

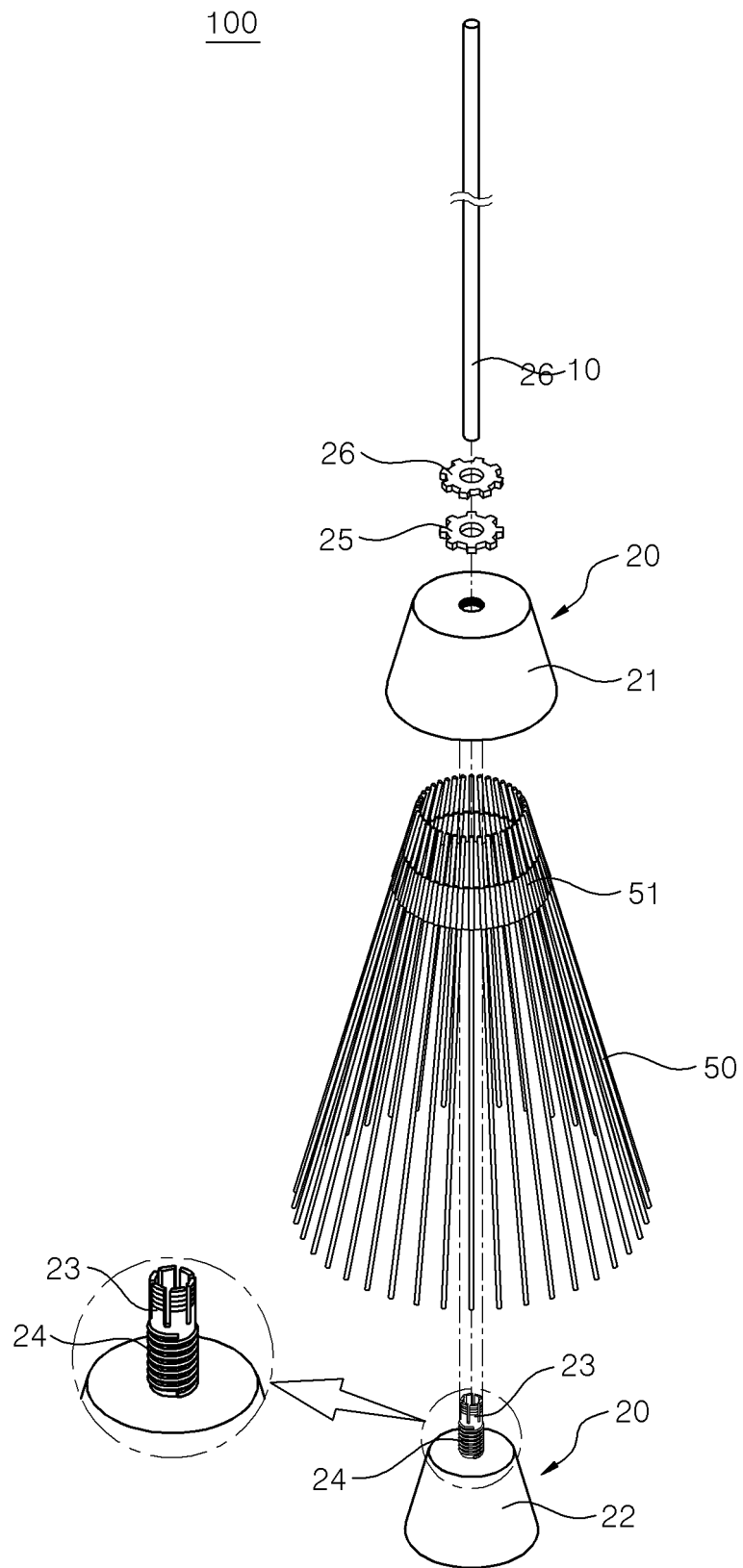
- a second housing inserted to the accommodation portion,
 wherein the bristle part is inserted to an insertion space formed by an inner wall of the first housing and an outer wall of the second housing, and as the inner wall of the first housing and the outer wall of the second housing become adjacent to each other, the bristle part inserted to the insertion space is pressed and fixed.
2. The broom of claim 1, wherein a plurality of bristles configured to constitute the bristle part are bound with each other by a connection band or a connection string.
3. The broom of claim 2, wherein as at least a portion of the connection band or the connection string is inserted to the insertion space when the bristle part is inserted to the insertion space, and the inner wall of the first housing and the outer wall of the second housing become adjacent to each other, at least a portion of the connection band or the connection string inserted to the insertion space is pressed.
4. The broom of claim 1, wherein a coating layer configured to increase a friction force or a projection configured to press the bristle part is formed on the inner wall of the first housing or the outer wall of the second housing.
5. The broom of claim 1, wherein a connection bar passing through the first housing and coupled to the handle part is formed on the second housing, and as a thread is formed on an outer surface of the connection bar, the first housing is screw-coupled to the connection bar.
6. The broom of claim 1, further comprising a coupling screw passing through the first housing and the second housing and screw-coupled to a coupling hole defined in one end of the handle part.
7. The broom of claim 1, wherein the bristle part is environment-friendly bristles made of a branch of a tree or a plant stem.
8. A broom for cleaning, comprising a handle part that is held by hands, a bristle part comprising a plurality of bristles, and a connection part configured to connect the handle part and the bristle part, wherein the connection part comprises:
- a first housing in which a first accommodation portion having one opened side is formed therein;
 at least one connection housing which is inserted to the first housing and in which a second accommodation portion having one opened side

is formed therein; and
 a second housing inserted to the second accommodation portion,
 wherein the bristle part is inserted to an insertion space formed by an inner wall of the first housing and an outer wall of the connection housing, an insertion space formed by an inner wall of the connection housing and an outer wall of the second housing, and an insertion space formed by an inner wall of one connection housing and an outer wall of the other connection housing, and the bristle part inserted to the insertion spaces is pressed and fixed as the inner wall and the outer wall, which constitute the insertion space, become adjacent to each other.

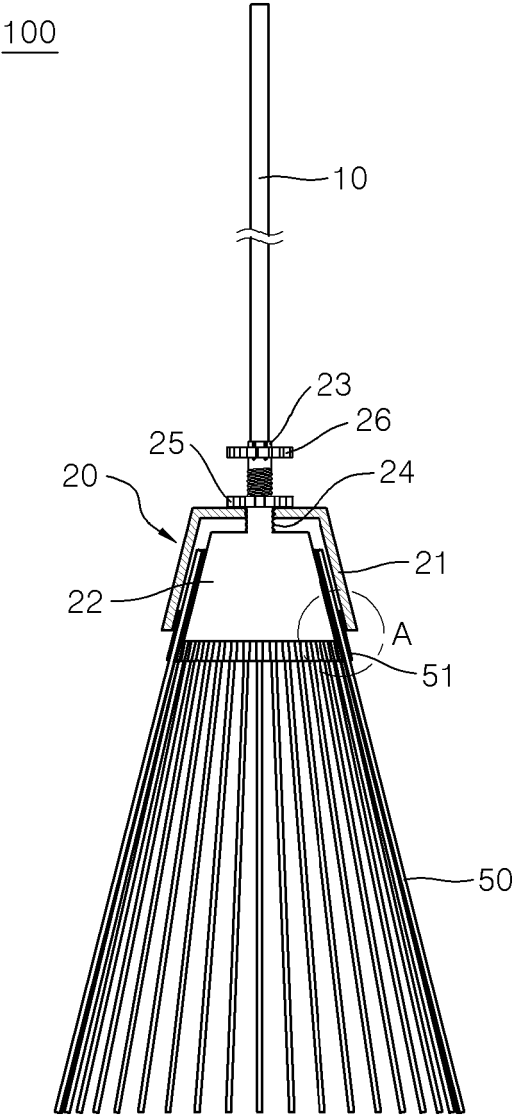
[FIG. 1]



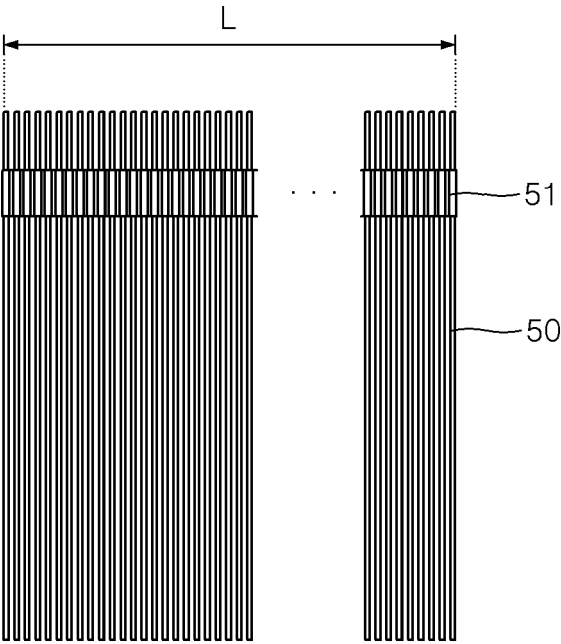
[FIG. 2]



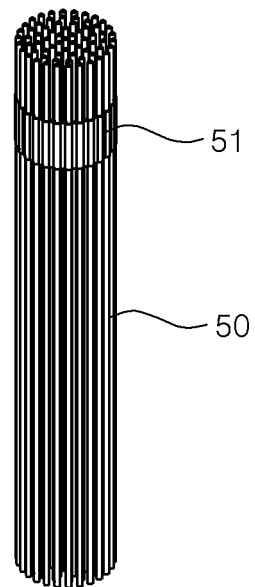
[FIG. 3]



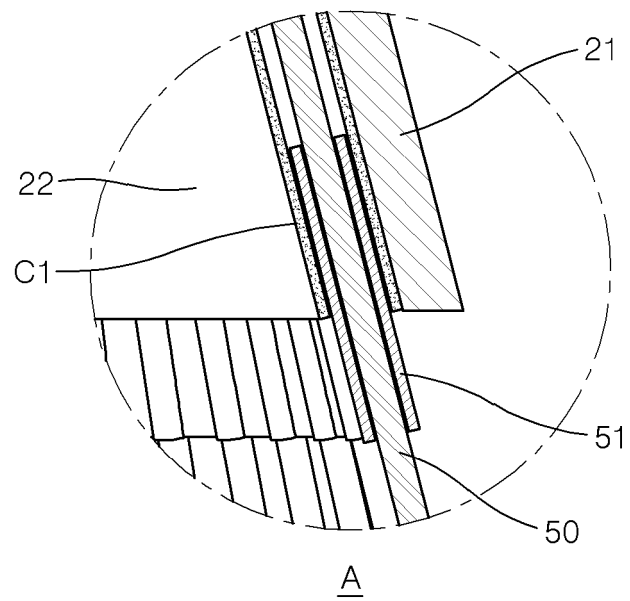
[FIG. 4]



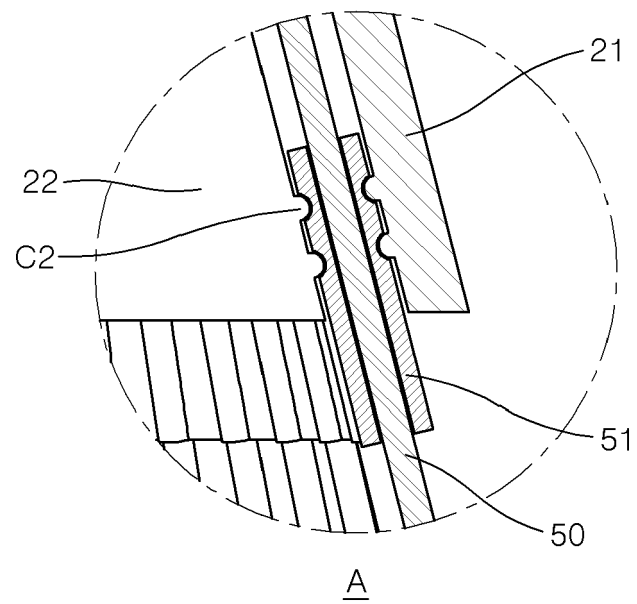
[FIG. 5]



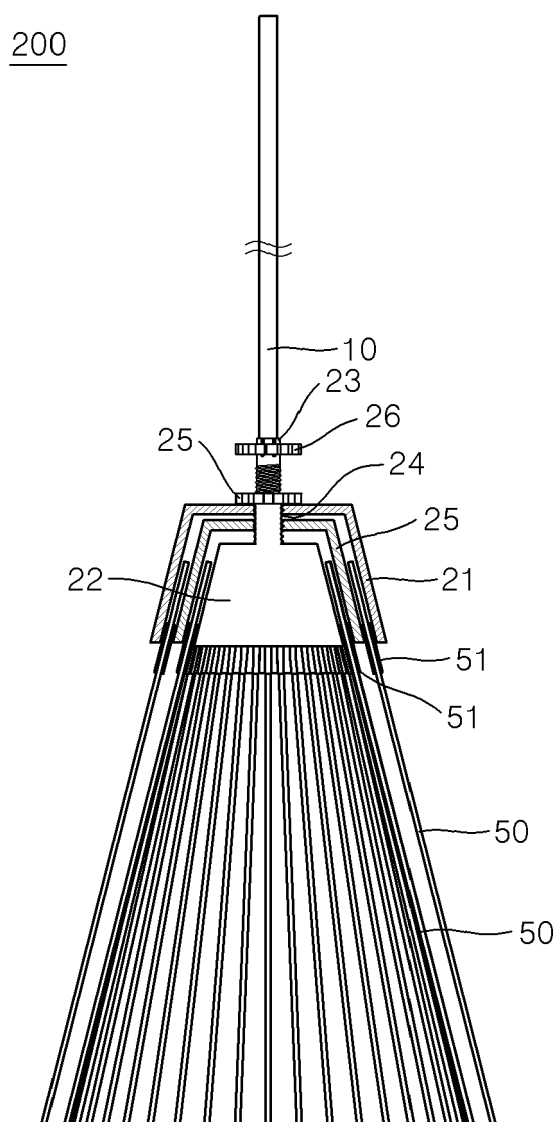
[FIG. 6]



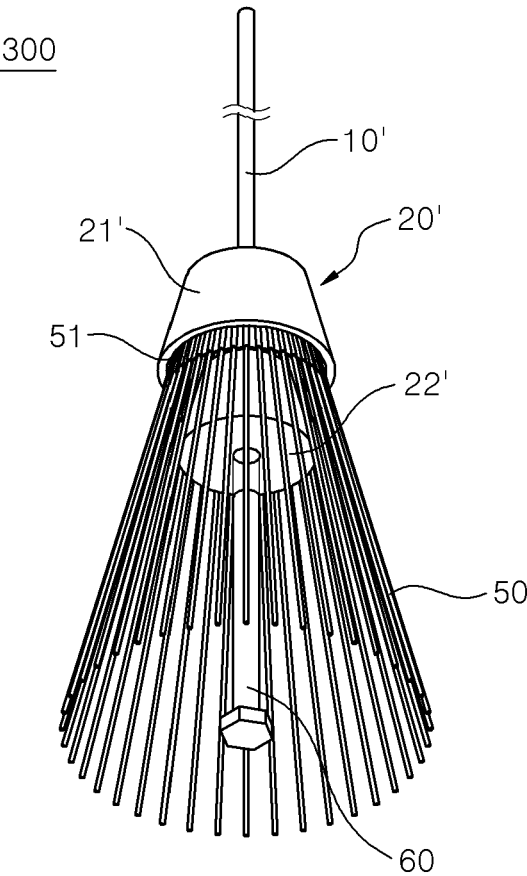
[FIG. 7]



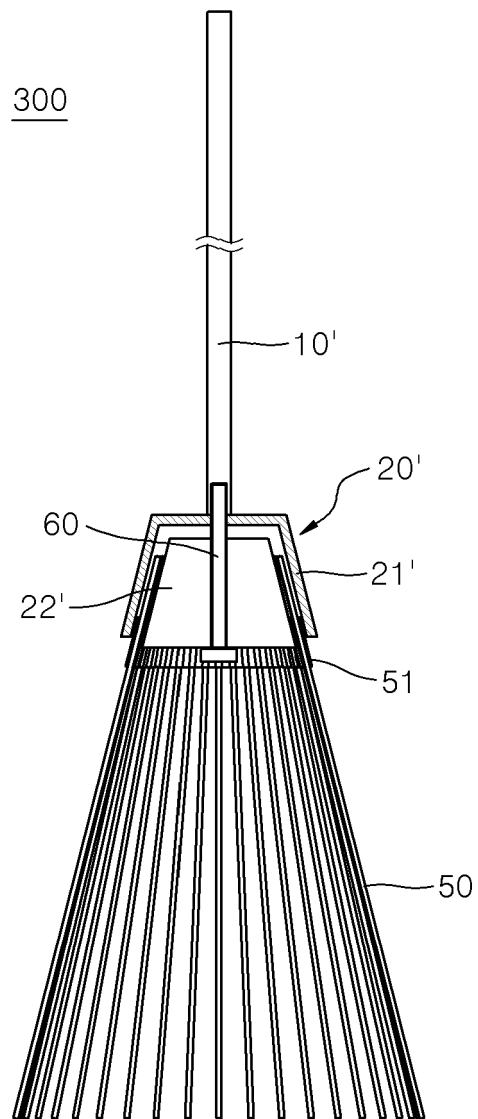
[FIG. 8]



[FIG. 9]



[FIG. 10]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2021/007904

A. CLASSIFICATION OF SUBJECT MATTER

A46B 7/04(2006.01)i; A46B 5/00(2006.01)i; A46B 3/08(2006.01)i; A46B 3/18(2006.01)i; A46D 1/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A46B 7/04(2006.01); A46B 15/00(2006.01); A46B 17/04(2006.01); A46B 3/08(2006.01); A46B 3/14(2006.01);
A46B 3/18(2006.01); A47L 13/254(2006.01); A47L 13/38(2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & keywords: 청소용 빗자루(cleaning broom), 자루부(handle), 빗살부(combtooth), 연결부(connecting portion), 하우징(housing), 삽입공간(insertion space), 연결 하우징(connecting housing), 연결 밴드(connecting band), 코팅층(coating layer), 돌기(protrusion), 연결봉(coupling rods), 결합나사(coupling screw)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-1573039 B1 (LEE, Yong Hai) 01 December 2015 (2015-12-01) See paragraphs [0016]-[0053]; and figures 2-13.	1-4,7,8
Y		5,6
Y	KR 10-1875096 B1 (KWON, Yung Il) 02 August 2018 (2018-08-02) See paragraphs [0023]-[0072]; and figures 3a-16.	5
Y	KR 20-0282438 Y1 (KWON, Young Kwang) 19 July 2002 (2002-07-19) See paragraphs [0007]-[0015]; and figures 1 and 2.	6
A	JP 2003-093305 A (TANAKA, K.) 02 April 2003 (2003-04-02) See entire document.	1-8

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

11 March 2022

Date of mailing of the international search report

16 March 2022

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon Building 4, 189 Cheongsaro, Seo-gu, Daejeon 35208

Authorized officer

Facsimile No. +82-42-481-8578

Telephone No.

Form PCT/ISA/210 (second sheet) (July 2019)

INTERNATIONAL SEARCH REPORT

International application No. PCT/KR2021/007904

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-1205981 B1 (KIM, Tae Soo) 28 November 2012 (2012-11-28) See entire document.	1-8

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