

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 April 2012 (19.04.2012)

(10) International Publication Number
WO 2012/049536 A1

(51) International Patent Classification:

A47L 13/20 (2006.01) A47L 13/24 (2006.01)
A47L 13/42 (2006.01) A47L 13/14 (2006.01)

(21) International Application Number:

PCT/IB2010/055234

(22) International Filing Date:

17 November 2010 (17.11.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

PCT/IB2010/054694

16 October 2010 (16.10.2010)

IB

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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,
SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

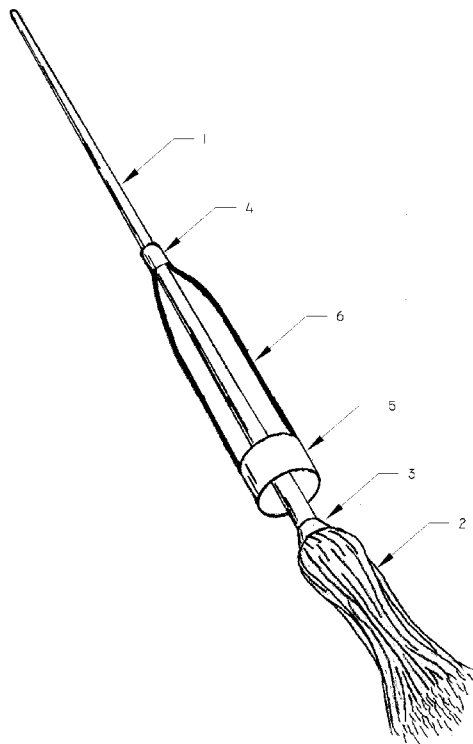
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: MOP WRINGER COLLAR

FIGURE 1



(57) Abstract: A Mop Wringer Collar is an independent, single-piece pre-formed plastic tube that attaches to any fabric mop. The bottom end of the Mop Wringer Collar (5) is shaped so that when it is pushed over the mop head (2) it wrings fluid out of the mop head without requiring direct hand contact of the mop head or a special bucket with an attached wringer device. The top end of the Mop Wringer Collar (4) can have an external handle and internal tabs that apply friction/pressure to the mop handle (1) and support the Mop Wringer Collar in any position.



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Description

Title of Invention: MOP WRINGER COLLAR

[1] **MOP WRINGER COLLAR**

[2] **FIELD OF THE INVENTION:**

[3] The field of the invention is wet mops, both woven fabric (e.g. cotton) and non-woven fabric wet mops used for both domestic and industrial hard floor cleaning.

[4] **BACKGROUND OF THE INVENTION**

[5] Wet mops have been used to clean hard floors since before the first cotton mop was patented in the 1890's. Today, in many developing countries in the world, the cotton mop remains the leading product in the market due to its low cost. However, in developed markets like Australia, the USA and Europe, there has been tremendous innovation, particularly in the last 20 years. Many generations of product innovations have super-seeded the cotton mop. For example the Butterfly Sponge Mops, reference U.S. Patent No. 4748710, which uses a replaceable cellulose sponge, and has a complex folding mechanical rinsing mechanism, that when a lever is pulled on the handle, the wings of the mop head fold against each other, squeezing the sponge between them.

[6] Another popular innovation in developed markets is the PVA sponge mop, refer U.S. Patent No. 5331706. In this case, the sponge material is even more sophisticated, and similarly the hands-free mechanical rinsing device is very complex. A handle mounted lever is pulled to push two spring loaded rollers down over the sponge head to achieve the rinsing function.

[7] A different category all together is the Wringer Buckets, for example the UK product US Patent No. 5333353, or the US version, US Patent No. 6941612. These modified buckets have a mop rinsing mechanism adapted into the design of the bucket. Whilst this innovation allows for the use of a simple cheap mop, like a basic cotton mop, in both examples the complex mechanisms employed in the bucket to squeeze out the mop head make this option many more times the cost of the mop.

[8] Older examples of innovation in mopping are also relevant to look at. For example, early self-contained wringers for cotton mops like US Patent No 3946457 from 1974, or even US Patent 5724694 from 1994 are both clever ideas designed to be used with cheap cotton and fabric wet mops. However, in both of these examples the sleeve attachments are part of the complete mop, and utilize a complex array of many moving parts. These in-built rollers are not only high maintenance, subject to failure, but most importantly make these options very expensive for developing markets.

[9] **THE TECHNICAL PROBLEM**

[10] The sophisticated high absorbency sponge materials and complex mechanical rinsing

devices utilized in popular mops and buckets in the USA, Europe and Australia typically cost between 5-10 times the price of market leading cotton mops in developing countries. And while wringer devices for cheap fabric mops exist in various shapes and sizes, many utilize complex mechanisms and moving parts, none are stand-alone units that can fit a variety of existing mops, and none are simple single-piece units for low cost. The high relative cost of these devices make them cost prohibitive in developing countries, and as such the vast majority of people in developing countries continue to wring mops out by hand, which presents a hygiene problem.

[11] A need exists for a simple, cost-effective device that will allow mops to be wrung out without requiring direct hand contact. The innovation needs to be delivered at a substantially reduced cost relative to existing products in developed markets. In addition, the innovation needs to be readily adaptable to the well established, traditional manner in which hard floors are cleaned in developing countries. It also needs to be adaptable to work with a variety of different mops that are readily available on those markets. To achieve these objectives the proven innovations of the developed world require significant modification.

[12] **THE TECHNICAL SOLUTION**

[13] The present invention satisfies the foregoing needs by providing a stand-alone, cost effective wringer mechanism that can work with all existing products in these markets. Cost increase is contained to a bare minimum, whilst still providing the convenience of being able to wring out the mop without having to touch the dirty wet mop head with ones hands

[14] This is accomplished by forming a simple one-piece plastic Mop Wringer Collar that can be attached to a range of different mop handles and mop heads. The Mop Wringer Collar assists the process of wringing the mop head and provides a barrier between the mop and the hand of the user. The Mop Wringer Collar attaches to existing "cheap" cotton mops, so it is readily adaptable to the traditional way of cleaning hard floors.

[15] The mop wringer can be formed with ridges that improve the performance of the wringer.

[16] The Mop Wringer Collar can be made adjustable so that it may be used on a wider range of mop heads, and allow the user to control the squeezing pressure and dryness of the mop.

[17] The Mop Wringer Collar can be formed with an upper section that secures the wringer to the handle of a mop. The upper section may have tabs formed inside that apply friction force to the mop handle and retain the sleeve in any position on the mop handle.

[18] The mop wringer collar can be formed with a clip in the back of the collar section that clips onto mop handles.

[19] **HOW THE INVENTION MAY BE USED**

[20] The function of wringing out the mop head is achieved by sliding the plastic collar down the mop over the mop head. The collar makes tight and compressive contact with the wet mop head, squeezing the mop head and forcing the dirty water out of the mop head fibres. This action rinses out the mop head whilst the users hands remain dry and clean on the outside of the sleeve. The user may then draw the wringer collar back up the handle of the mop, leaving the mop rinsed and clean, ready to continue mopping.

[21] The cost effectiveness is achieved in two ways. Firstly, the wringer is designed as an independent piece that attaches to the existing low cost mops used in developing countries, rather than being a part of a complete, more sophisticated product. Secondly, by simplifying the innovation of a wringer to a one-piece pre-formed lightweight plastic, it becomes much cheaper than a multi-piece high-quality wringer. With these two differences combined, the wringer collar adds only minimal cost. Thus, the independent wringer collar is only around 20% of the cost of cheap cotton mops, and some 20 times cheaper than more sophisticated leading products in the developed markets of the US, Europe and Australia.

[22] **INTRODUCTION TO THE DRAWINGS**

[23] Figure 1 is an isometric drawing of the Mop Wringer Collar fitted to a mop.

[24] Figure 2 is an isometric view of the wringer collar removed from the mop.

[25] Figure 3 is a view of a wringer collar that has a mechanism to allow adjustment of the diameter of the Wringer Collar.

[26] Figure 4 is the same part shown in figure 2, rotated 90 degrees about a vertical axis.

[27] Figure 5 is Section C-C showing how the wringer collar can have multiple clip points.

[28] Figure 6 is a single-piece, full-body wringer that does not have an adjustable diameter.

[29] Figure 7 is a view of looking down on a wringer collar, showing the tabs formed inside the top of the neck.

[30] Figure 8 is a section view of the top of the wringer collar, showing the tabs formed inside the top of the neck.

[31] Figure 9 is a section view of the wringer showing different ridging options to improve performance of the wringer.

[32] Figure 10 is an isometric view of a wringer that has a clip formed into the profile of the wringer that allows it to be clipped onto a mop handle. This version of the design can be removed from the mop completely and can also have a clip formed on the back that could be clipped onto the rim of a bucket (not shown).

[33] **DETAILED DESCRIPTION OF THE INVENTION**

[34] Figure 1 shows a mop wringer attached to the handle of a mop (1). When hand

pressure is applied to the mop wringer it can easily be slid down the mop handle over the mop head (2). The action of sliding the Mop Wringer over the mop head squeezes water out of the mop head.

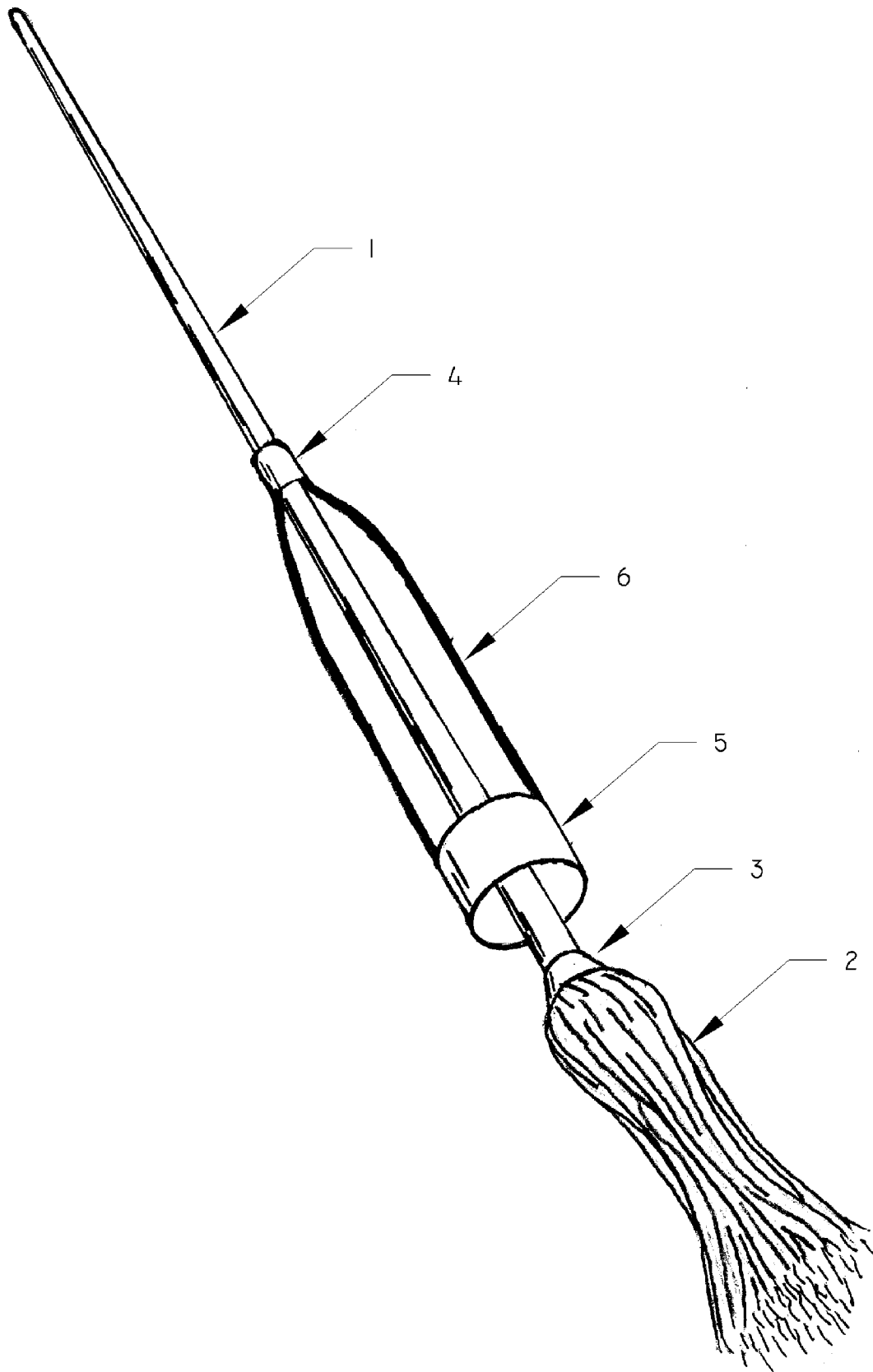
- [35] Figure 2, Figure 3 and Figure 4 show one embodiment of the invention where there are 3 main aspects to the design. The upper section (4) attaches to the mop handle. The lower section (5) acts as the wringer. And the struts (6) simply connect the upper and lower sections together. This embodiment of the invention also has the capability of adjusting the diameter of the lower section to suit multiple mops. This is achieved by having slots (8) in the lower section and a tab (9) that is inserted into one of the slots.
- [36] Figure 5 shows a section view of the slots (8) and tab (9). The tab can be fabricated so that squeezing the lower section of the mop will reduce its diameter and allow more water to be squeezed out of the mop.
- [37] Figure 6 shows a different embodiment of the invention where the diameter of the wringer is fixed. This can effectively be a tubular section along the entire length of the wringer. It may have grooves (7) to help improve performance. The grooves may extend all the way up to the top section of the wringer, or there may be a portion where there is no grooves (10).
- [38] Figure 7 is a view looking down on the top piece of the wringer and it shows the tabs (11) protruding into the centre of the wringer.
- [39] Figure 8 is a section view showing how the tabs (11) contact and press against the mop handle (1).
- [40] The top piece (4) of the wringer has tabs formed into the same single-piece (11) as shown in Figure 7 and Figure 8. The tabs apply pressure to the mop handle (1) that is sufficient to hold the mop wringer in position, without moving, while the mop is being used.
- [41] Figure 9 shows how different groove patterns (7) may be applied to the wringer section. The groove patterns may be vertical for the fixed diameter wringer as shown in Figure 6 or horizontal as shown in figure 3. They can be formed as grooves or raised ridges, depending on the manufacture process.
- [42] Figure 10 shows a Wringer Collar that doesn't have an upper section. It has a clip-profile formed (12) so that it can be clipped onto the handle of a mop.

Claims

- [Claim 1] An independent, plastic collar that may be used with any traditional fabric mops to assist with the process of wringing water out of the mop head without requiring direct hand contact. As an independent unit it may be sold separately and not part of a complete mop.
- [Claim 2] The plastic collar is a single-piece, low-cost unit, with no additional parts to attach or complex internal mechanisms.
- [Claim 3] Device of claim 1 that has an adjustable diameter wringer that can suit different mop heads and allow customizable pressure, and customizable drying force to be applied to the mop head while wringing.
- [Claim 4] Device in claim 1 that does not have an adjustable diameter wringer.
- [Claim 5] Device in claim 1 that has ridges and or grooves to improve performance of the wringing action.
- [Claim 6] Device of claim 1 that has tabs inside the upper section of the handle that hold it in position on the mop handle and prevent it sliding under its own weight.
- [Claim 7] Device of claim 1 that has a clip to attach to the mop handle.
- [Claim 8] Device of claim 1 that has a clip to attach to a bucket.

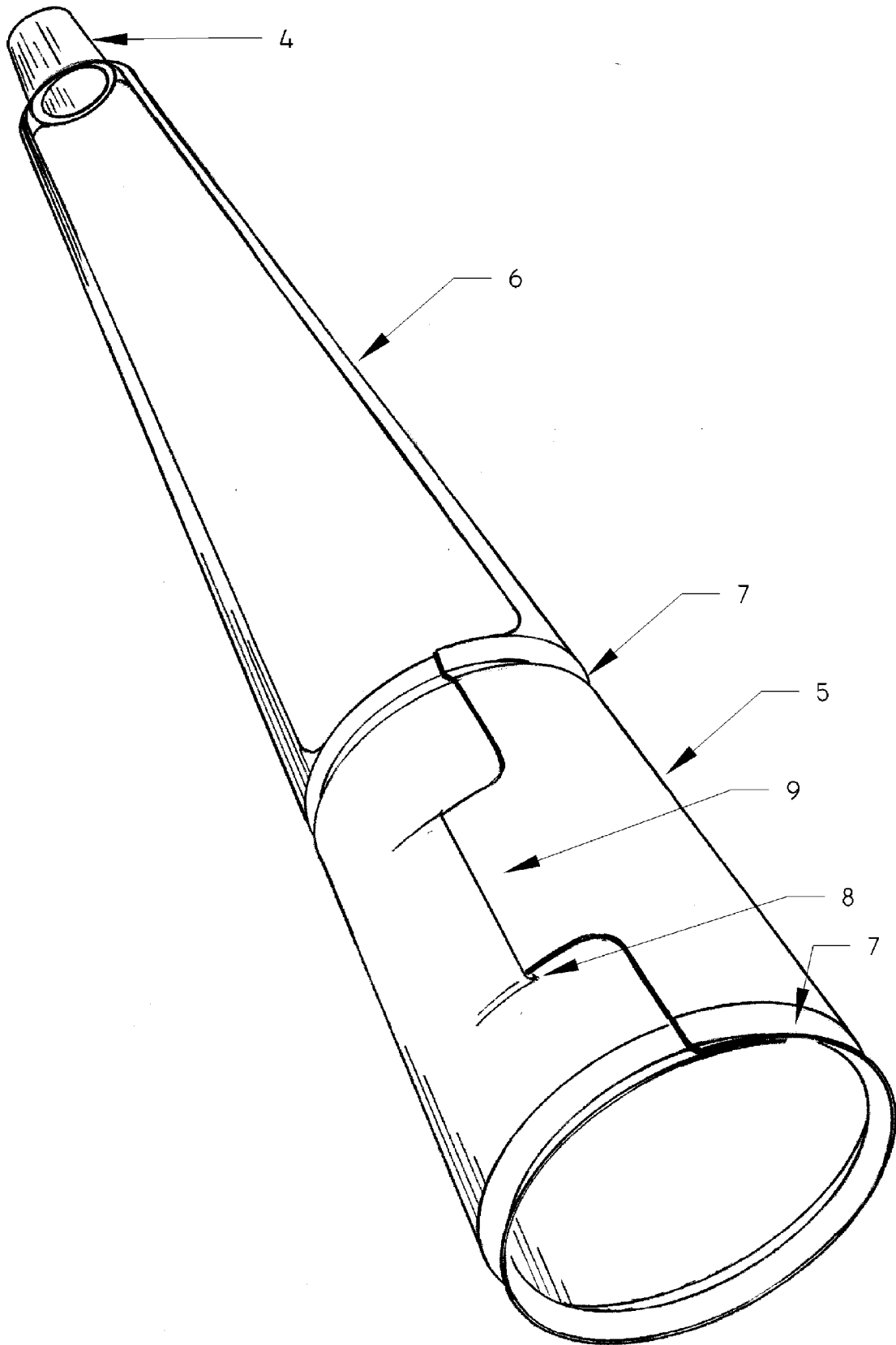
[Fig. 1]

FIGURE 1



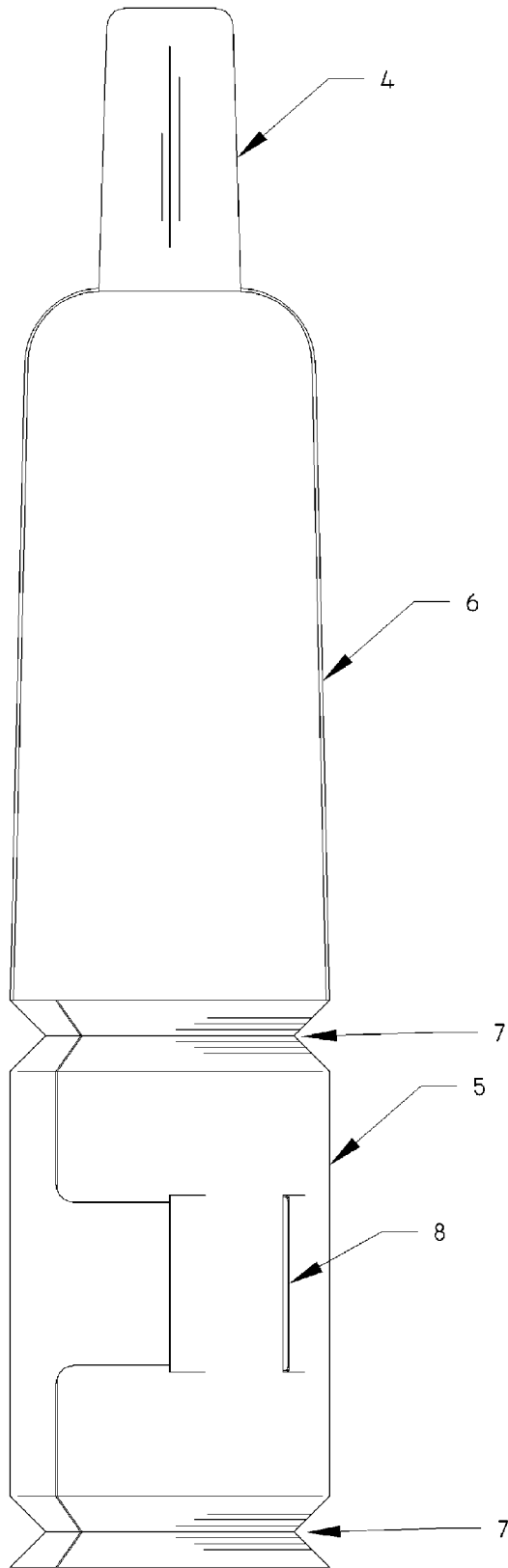
[Fig. 2]

FIGURE 2



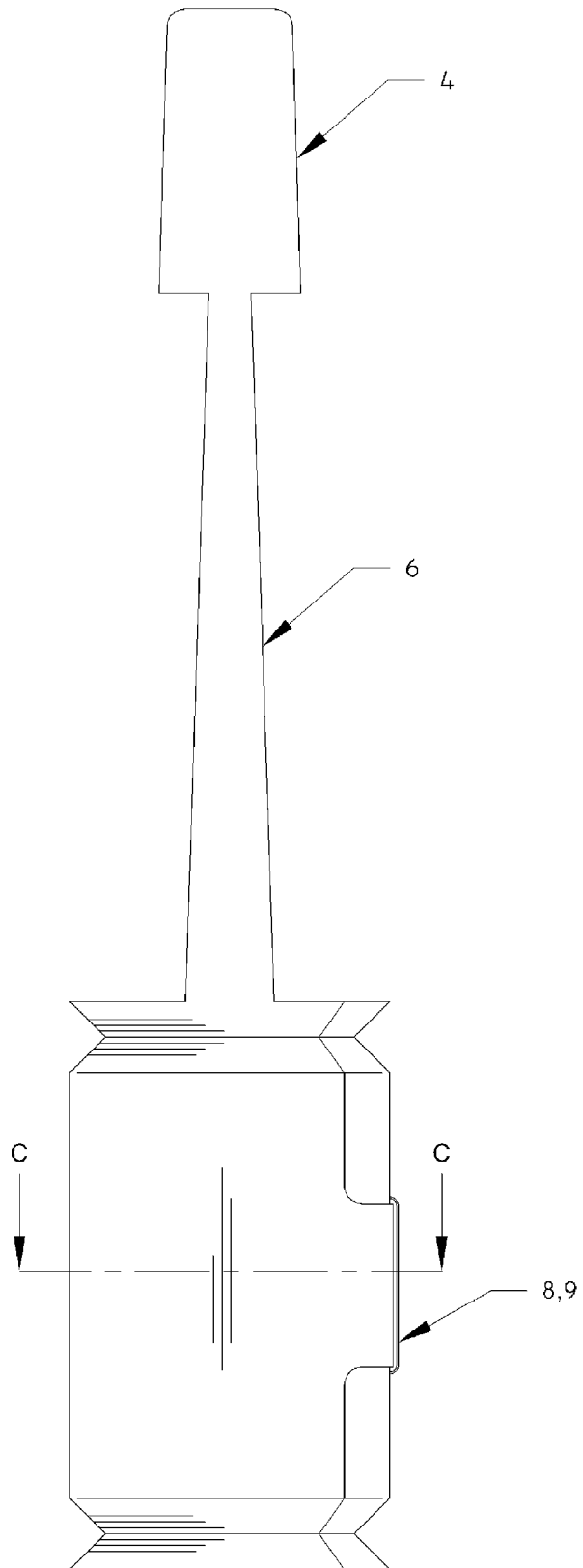
[Fig. 3]

FIGURE 3



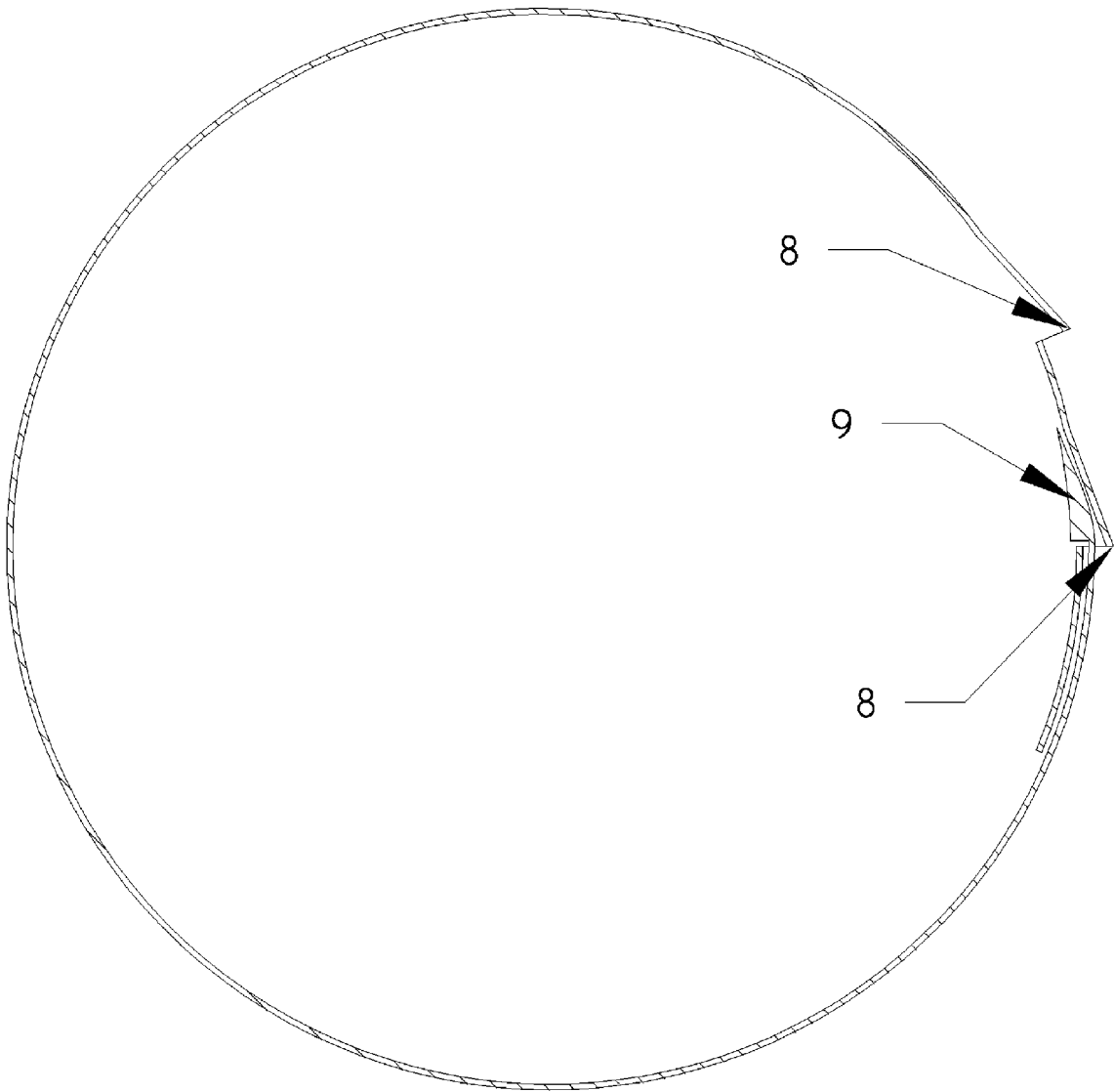
[Fig. 4]

FIGURE 4



[Fig. 5]

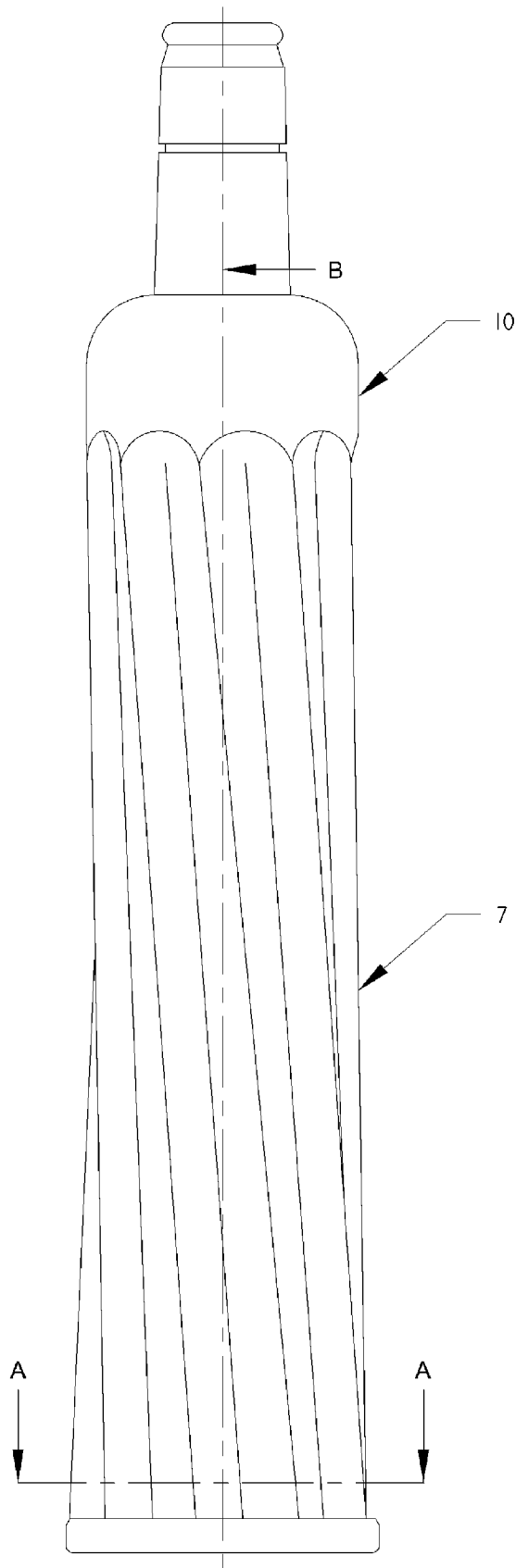
FIGURE 5



SECTION C-C

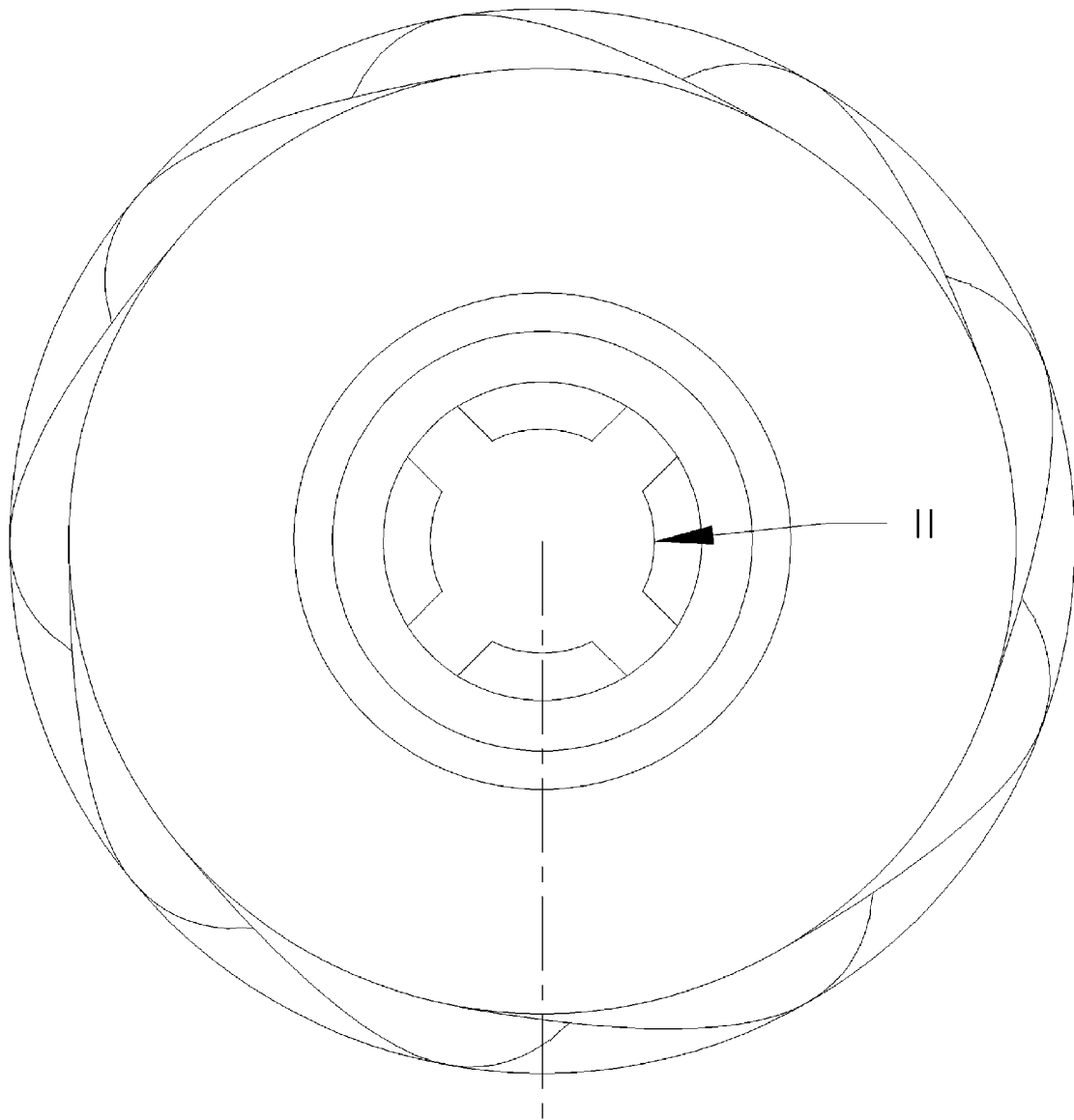
[Fig. 6]

FIGURE 6



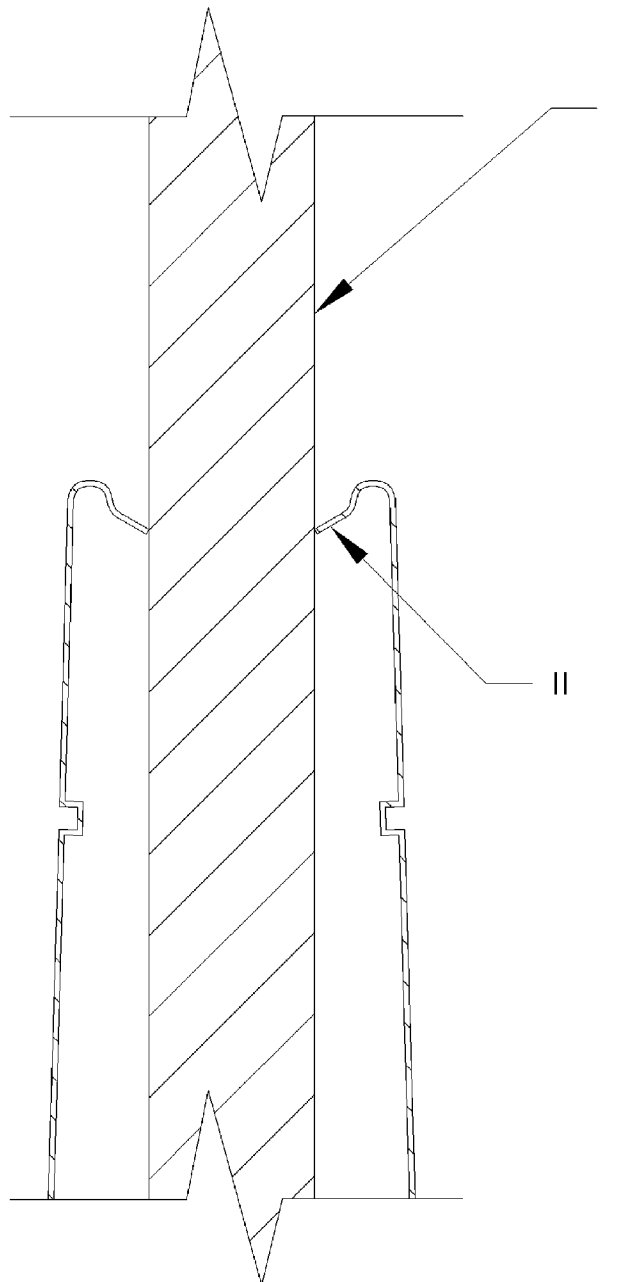
[Fig. 7]

FIGURE 7



[Fig. 8]

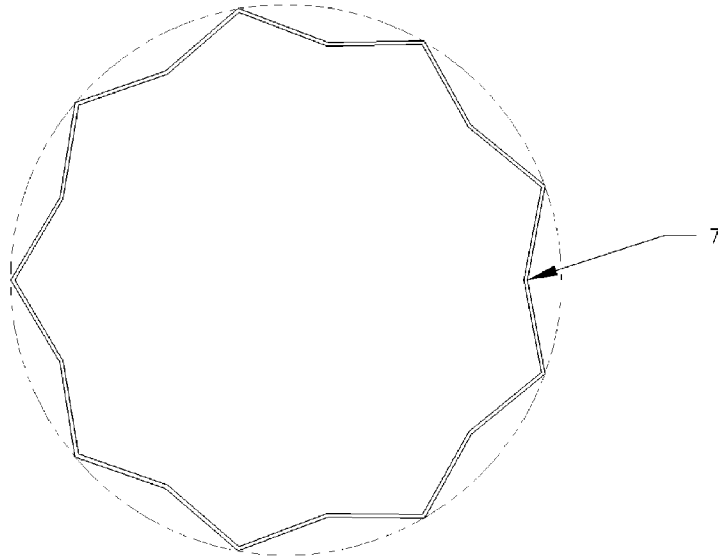
FIGURE 8



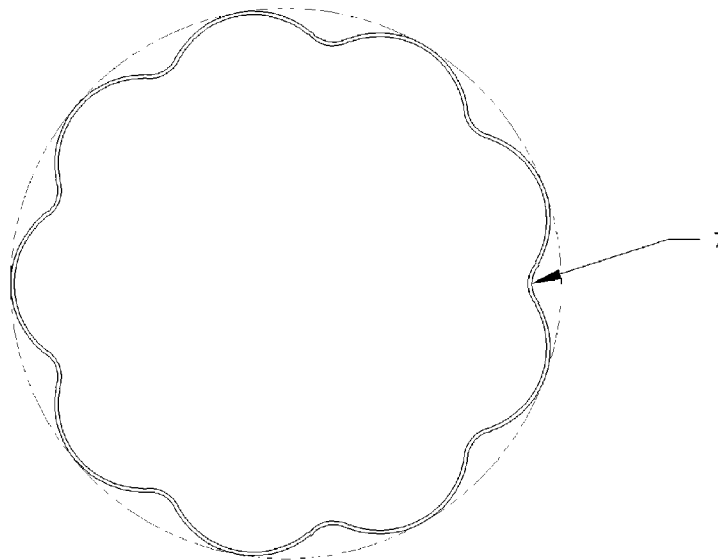
SECTION B-B

[Fig. 9]

FIGURE 9



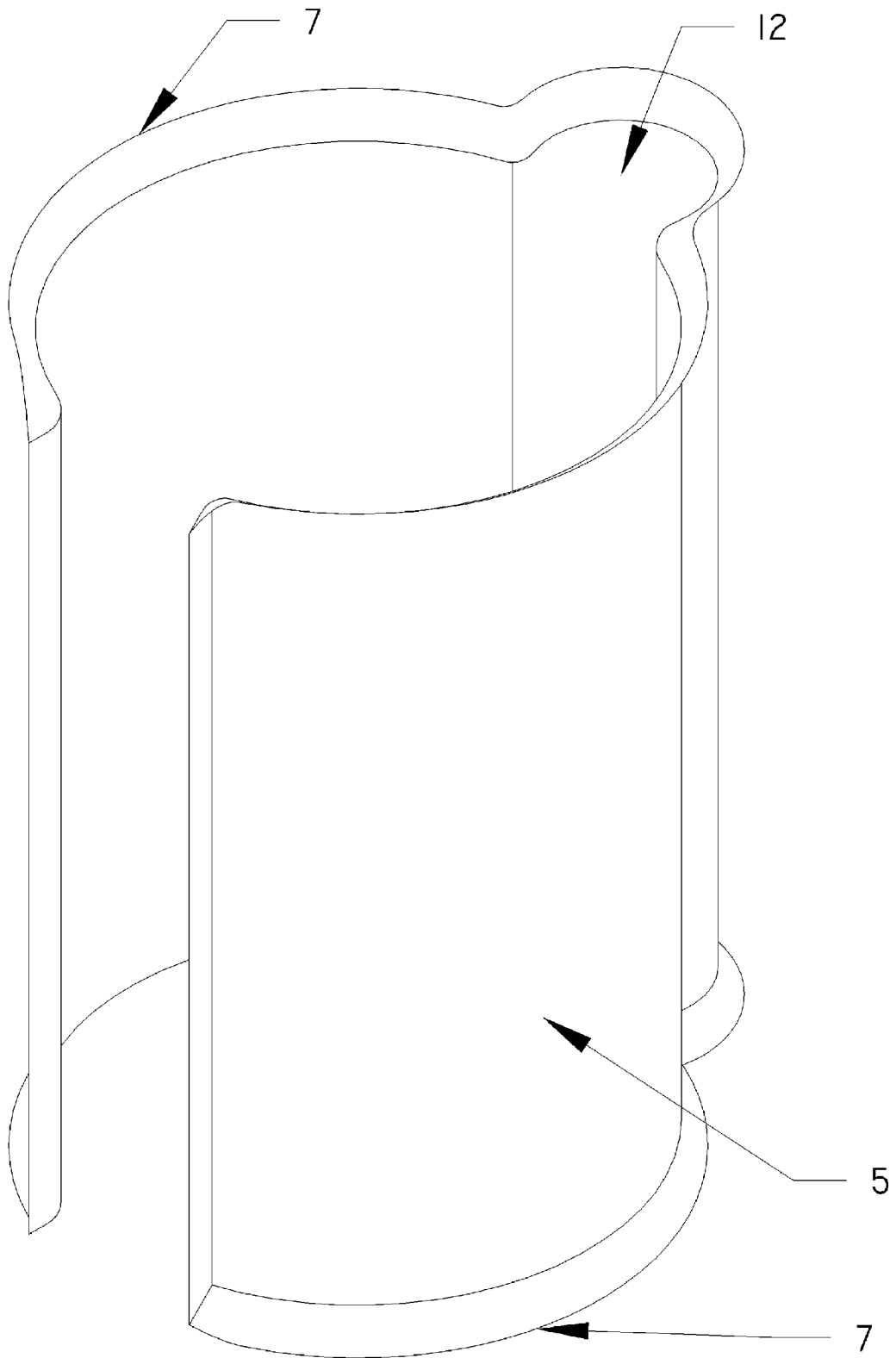
SECTION A-A (OPTION 1)



SECTION A-A (OPTION 2)

[Fig. 10]

FIGURE 10



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB2010/055234

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl.		
A47L 13/20 (2006.01) A47L 13/42 (2006.01) A47L 13/24 (2006.01) A47L 13/14 (2006.01)		
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)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPOQUE (EPODOC/WPI) IC/EC marks and keywords: A47L13/20, A47L13/24, A47L13/42, A47L13/14 and TWIST/WRING/ROTAT/TURN/ROTAT+, DRAIN/DRY/SQUEEZ/PRESS, COLLAR,RETRO_FIT/MOUNT/ADAPT ESPACE and Google Patents: Similar Keywords as above		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6108848 A (MONAHAN) 29 August 2000 column 3: lines 1-10, fig. 1, column 3: lines 27-36, fig. 7	1-8
X	US 5675858 A (VON MEYER) 14 October 1997 column 1- column 2, figs. 2-3 and 8	1-3, 5-8
A	US 3946457 A (ROBINSON) 30 March 1976 Whole document	
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 31 January 2011	Date of mailing of the international search report 04 FEB 2011	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer VEENA BHAT AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61 2 6283 7963	

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplemental Box I

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

Supplemental Box I

(To be used when the space in any of Boxes I to IV is not sufficient)

Continuation of Box No: III

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

In assessing whether there is more than one invention claimed, I have given consideration to those features which can be considered to potentially distinguish the claimed combination of features from the prior art. Where different claims have different distinguishing features they define different inventions.

This International Searching Authority has found that there are different inventions as follows:

Claims 1 and 3-8 are directed towards an Independent plastic collar that may be used with any traditional fabric mops to assist with the process of wringing water out of the mop head without requiring direct hand contact. The said combination of features is considered to be first group of invention

Claim 2 is directed towards a plastic collar which is single piece, low-cost unit, with no additional parts to attach or complex internal mechanisms. The said combination of features is considered to be the second group of invention.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

The only feature common to all of the claims is a *plastic collar*. However this is feature is not novel in light of each of the following:

US 6108848 A (MONAHAN) 29 August 2000

US 5675858 A (VON MEYER) 14 October 1997

This means that the common feature can not constitute a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Because the common feature does not satisfy the requirement for being a special technical feature it follows that it cannot provide the necessary technical relationship between the identified inventions. Therefore the claims do not satisfy the requirement of unity of invention *a posteriori*.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2010/055234

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	6108848	NONE					
US	5675858	CA	2242824				
US	3946457	AU	7410774	CA	1004812	DE	2455637
		DK	545574	FR	2264511	GB	1477883
		JP	50125561	SE	7413239	ZA	7406565

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX