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(54) Title: CALLOUS REMOVER DEVICE

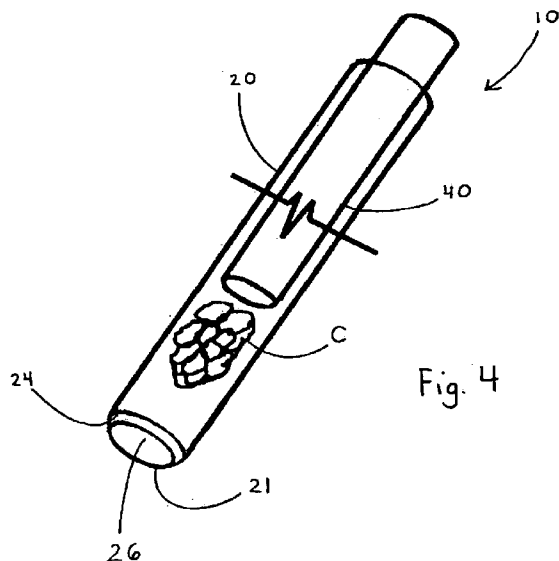


Fig. 4

(57) Abstract: A device and method for removing irregular tissue bodies from the skin comprising a tubular member with an internal blade edge positioned adjacent to either or both of its ends. One or both ends have continuously curved cross-section defining an internal blade edge. The edge is moved in a reciprocating fashion. An elongated plunge member larger than the tubular member permits a user to remove the cut and stored irregular tissue material. The central through opening is optionally filled with a suitable substance to enhance or complement the cutting action of the blade.

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I. TITLE: "CALLOUS REMOVER DEVICE"

II. TECHNICAL FIELD

The present invention relates to a device for removing callouses and other undesirable tissues such as corns, cuticle, and the like, and more particularly, to such a device that includes a circular blade.

III. BACKGROUND ART

2. Other Related Applications.

The present application is a continuation-in-part of pending U.S. patent application serial No. 10/877,219, filed on June 25, 2004, which in turn is based on provisional application No. 60/483,062, filed on June 30, 2003, which are hereby incorporated by reference.

Several designs for removing callous tissues have been designed in the past. None of them, however, includes a circular blade scalpel that is safe and easy to use with efficient results capable of differentiating between the dead (to be removed) and live (to remain) tissues. Many of the instruments used today are quite aggressive, and more so in the hands of inexperienced users. The prior art devices do not discriminate between the calloused tissues and the healthy ones.

Applicant believes that the closest reference corresponds to U.S. patent No. 4,246,914 issued to Keyser for an abrasive relief device for the foot. However, it differs from the present invention because a circular blade is not disclosed or suggested nor does it include a feature capable of differentiating between the dead and live cells.

Another reference corresponds to U.S. patent No. 954,325 issued to Moore for a manicuring instrument. The device differs from the claimed invention herein in that it teaches a device with sharp pointed edges, used at various angles for aggressive cutting of the tissues. Moore's patent device does not teach the perpendicular use of the device, nor the necessary structure of the device, to smoothly discriminate between dead and healthy tissues.

Other patents describing the closest subject matter provide for a number of more or less complicated features that fail to solve the problem in an efficient and economical way. None of these patents suggest the novel features of the present invention.

IV. SUMMARY OF THE INVENTION

It is one of the main objects of the present invention to provide a device for removing callouses and the extraneous overgrown tissues.

It is another object of this invention to provide such a device that is safe and easy to operate even by untrained users.

It is still another object of the present invention to provide a device that can be readily cleaned and sterilized.

Another object of this invention is to provide a novel method for removing callouses and other extraneous tissues effectively.

It is yet another object of this invention to provide such a device that is inexpensive to manufacture and maintain while retaining its effectiveness.

Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

V. BRIEF DESCRIPTION OF THE DRAWINGS

With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Figure 1 represents a partial elevational view of the device as it is used to remove undesirable tissues C.

Figure 2 shows the device shown in figure 1 after irregular tissue C has been removed and blade member 24 slides freely without resistance.

Figure 3 illustrates the use of the present invention.

Figure 4 is a representation of the tubular member with a cooperating plunge member.

VI. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, where the present invention is generally referred to with numeral **10**, it can be observed that it basically includes a tubular member **20** with a central through opening **26**. Member **20** has ends **21** and **22**, as best seen in figure 3. At least one of these two ends has internal blade edge **24**. Device **10** includes central through opening **26** that extends from end **21** to end **22**. Central through opening **26** is designed to permit a user to fill the space with a suitable substance such as a skin softener, antiseptic product, or any other equivalent product, if desired.

Blade edge **24** is located at the lowermost end of inner wall **23** of tubular member **20**, adjacent to end **21** and optionally to end **22** also. Blade edge **24** is located at either or both ends **21** and **22**. From the inner side of ends **21** and **22** they extend outwardly with a continuously curved cross-section, as best seen in figures 1 and 2. Blade edge **24** is sharp enough to scrape the irregularities formed on the surface of skin **S** where device **10** is used. A reciprocating movement in the target area causes edge **24** to scrape across any protruding irregularities. Once the target area has been smoothed out by removing the dead cells, the resulting surface is smooth. This smooth surface permits blade edge **24** to glide over the healthy skin area without obstruction. A user can readily detect this loss of resistance signaling the removal of irregular dead tissues. This avoids irritating the live cells adjacent to the target area.

Device **10**, as it is moved along skin **S**, causes the latter to deflect. Callous tissues deflect less and are thus exposed to the scraping action

of blade edge 24. Conversely, as the callous tissue is removed, blade edge 24 slides with less resistance and grip.

A plunger member 40 has a cooperative diameter smaller than the inner diameter of through opening 26. Member 40 is, in the preferred embodiment, longer than tubular member 20 so that it can be inserted inside through opening 26 and protrude through end 21 or end 22 to push out the collected tissue material. The material of members 20 and 40 is selected so that it meets rigidity standards while compatible with sterilization processes. Steel has been one of such material even though other metals with similar characteristics can also be used. Additionally, many hardened plastic materials can be used.

One of the preferred methods for using the present invention is to use a wetting substance. Tubular member 20 can be at least partially filled with a wetting substance W specially if in gel form. Plunger member 40 can be used to push out wetting substance W, as needed.

The method for using device 10 includes initially identifying and, optionally, wetting the target area. Applying in reciprocating movement to one end, with a cutting edge, in a substantially perpendicular relationship with respect to the target area.

One other application for the present invention is to use device 10 with animals. Depending on the particular application the diameter of tubular member 20 can be varied.

The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It

The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It is to be understood that all matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense.

VII. INDUSTRIAL APPLICABILITY

It is apparent from the previous paragraphs that an improvement of the type for such a callous remover device is quite desirable for removing irregular tissue bodies from the skin.

VIII. CLAIMS

What is claimed is:

1. A device for removing irregular tissue bodies from the surface of a user's skin, comprising an elongated tubular member having first and second ends, said tubular member including a coextensive centrally and coaxially extending through opening, and further including first blade means with an innermost peripheral first cutting edge, said first blade means positioned adjacent to said first end defining a first diameter and said first end having a continuously curved cross-section so that a user's skin is slightly deformed upon the application of a substantially perpendicular force thereby gliding over smooth areas of the skin while cutting irregular dead tissues.
2. The device set forth in claim 1 further including an elongated plunge member longer than said tubular member and having a cooperative plunge diameter smaller than said first diameter to permit said plunge member to protrude through said first end when inserted through said second end.
3. The device set forth in claim 2 wherein said tubular member is at least partially filled with a wetting substance.
4. The device set forth in claim 1 further including second inwardly extending flanged blade means with an innermost peripheral second cutting edge, said second blade means positioned adjacent to said second end and defining a second diameter.

5. The device set forth in claim 3 wherein said tubular member is at least partially filled with a wetting substance.
6. The device set forth in claim 5 further including an elongated plunge member longer than said tubular member and having a cooperative plunge diameter smaller than said first and second diameters to permit said plunger member to protrude through said first end when inserted through said second end and vice versa.
7. A method for removing irregular tissue bodies from the skin, comprising the steps of:
 - A) wetting the area of the skin to be worked on; and
 - B) moving one of the ends of a tubular member with a coextensive longitudinal through opening in a reciprocating movement, and said end including an internal blade edge for cutting irregular tissue bodies protruding from said area.
8. The method set forth in claim 7 wherein said tubular member is positioned in a substantially perpendicular relationship with respect to said area.
9. The method set forth in claim 7 wherein said tubular member is filled with a wetting substance.

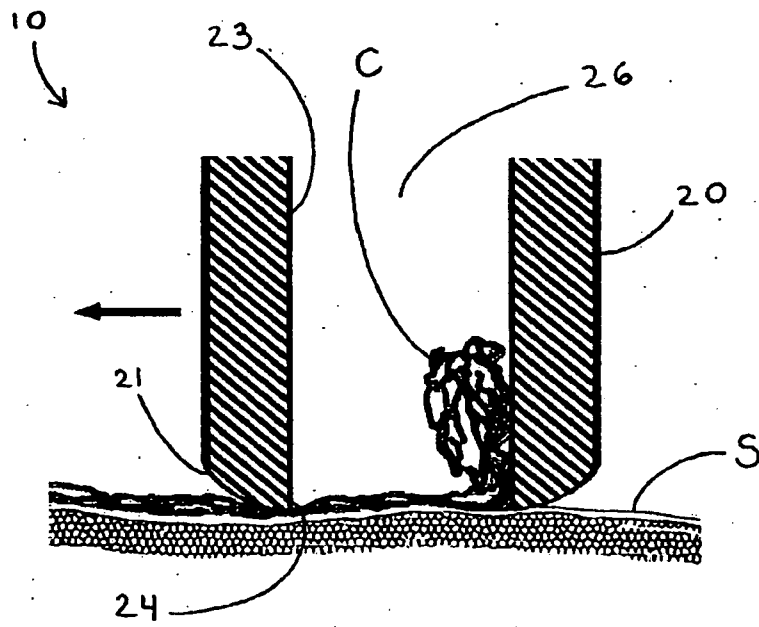


Fig. 1

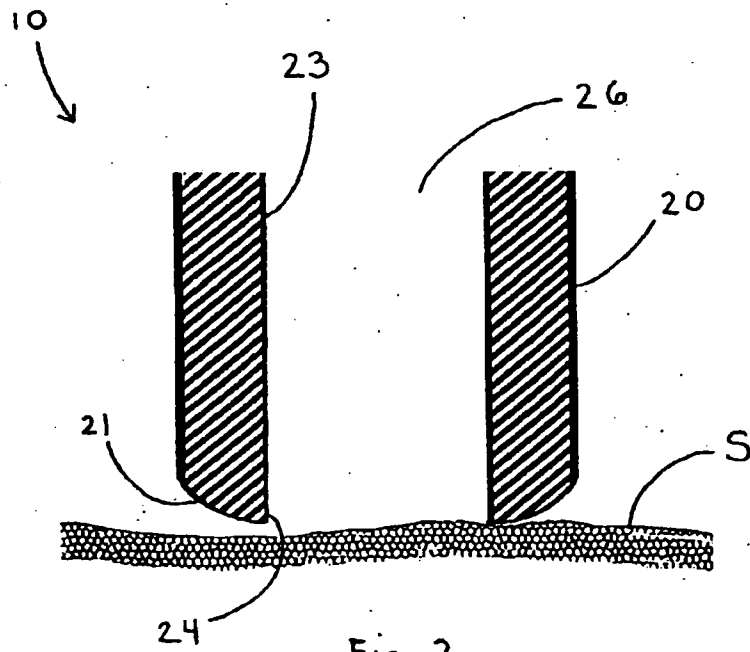
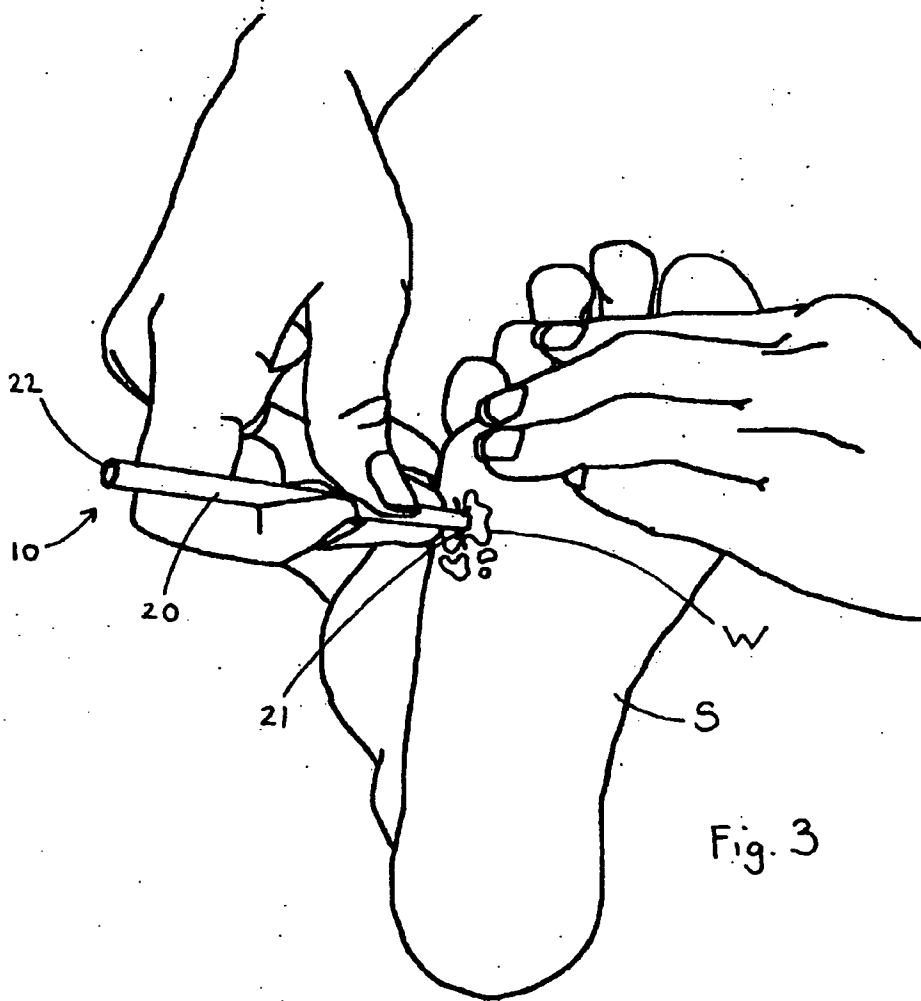
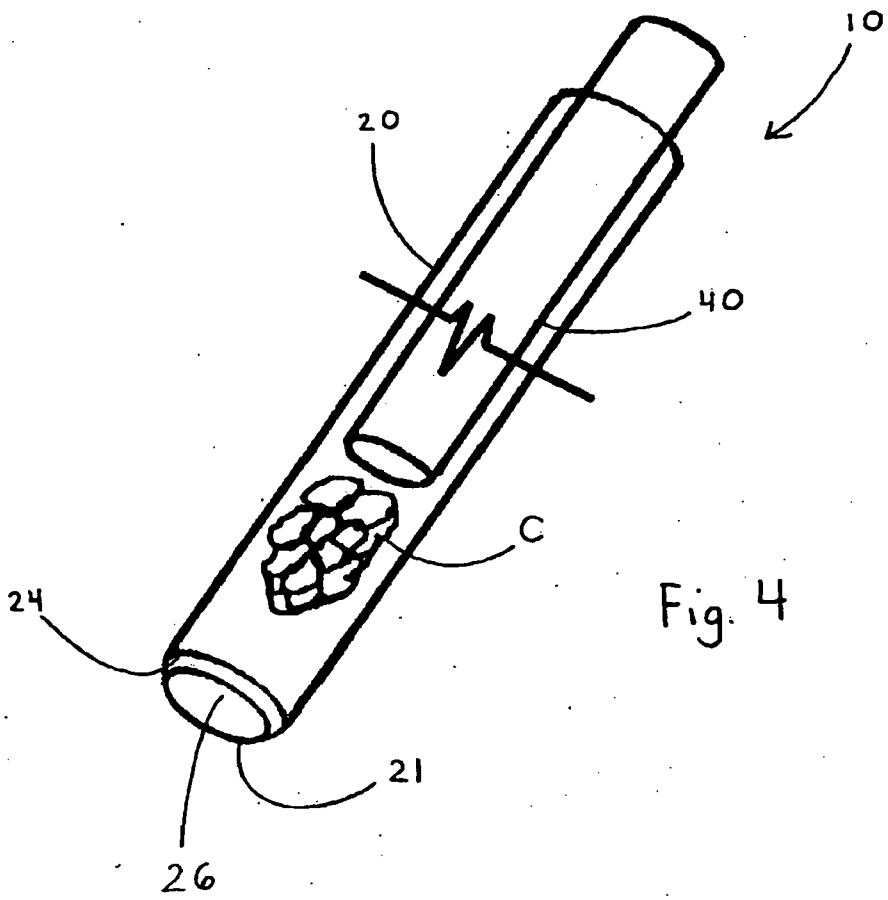


Fig. 2





INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/14904

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **A45D 29/00(2006.01);29/18(2006.01);A61B 17/50(2006.01);A61M 35/00(2006.01)**

 USPC: 132/73,73.5,75.4,75.5,76.4;606/131;604/289
 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)
 U.S. : 132/73,73.5,75.4,75.5,76.4; 606/131; 604/289

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 7,093,603 A (HAN) 22 August 2006, whole document	1,2
X	US 954,325 A (MOORE) 5 April 1910, whole document	1
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Y		4
Y	US 6,017,351 A (STREET) 25 January 2000, whole document	2, 3, 5-9
A	US 5,507,760 A (WYNNE et al) 16 April 2000, whole document	1-9
A	US 3,807,405 A NIEBEL 30 April 1974, whole document	1-9

Further documents are listed in the continuation of Box C. 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 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
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"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		

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