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(54) Title: NASAL SPECULUM

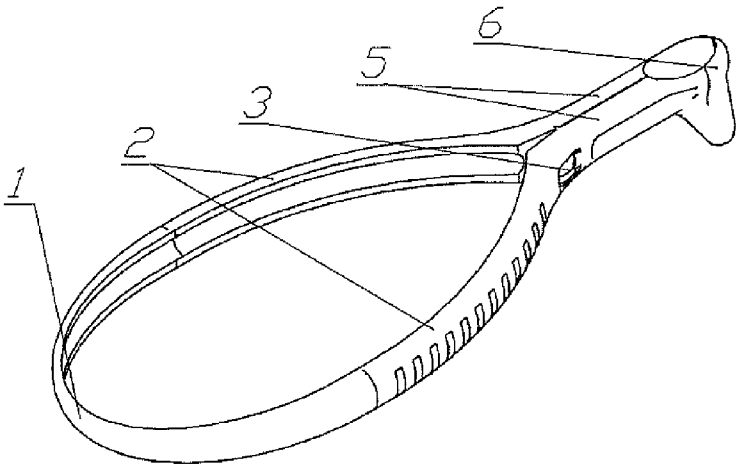

Fig. 1

(57) Abstract: A nasal speculum, rhinoscope, designed for examination of the nasal cavity in both humans and animals, is characterized in that it is made from one piece of material and has a resilient arc-shaped connector (1) of the arms (2), said arms connected centrally to one another by means of a catch (3) located in opening (4), said arms extending beyond the said point of connection in the form of parallel shorter arms (5), said shorter arms terminating in appropriately shaped members (6) resembling a truncated cone, the speculum being also provided with a lip (7) positioning the arms of the speculum and with indentations (8) that prevent slipping of the hand when arms (2) are being pressed.

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Nasal speculum

The invention relates to a nasal speculum, a rhinoscope, designed for examination of the nasal cavity, in both humans and animals.

Nasal specula were the subject of many dissertations and patent applications. Initially they were made of metal, while in recent decades they are also increasingly made of plastics. Initially the design of the majority of specula made use of the principle of a two-armed lever, where the arms were connected pivotally to each other at a point forming a common axis of rotation. Nowadays there are a number of speculum designs which also take advantage of the two-armed lever principle where, however, the ends of the arms are connected to each other and a connector fulfils the function of the pivot.

Specula made of metal are certainly durable, made with due precision and are reusable. However, they require sterilization after each use. The design of specula made of plastic or of other flexible material is much simpler, and such items are usually designed for single use.

The first disclosed patent applications concerning specula date from the beginnings of the past century, e.g. US patent no. 730284 from 1903.

The Greek patent specification no. GR 920100047 describes a nasal speculum that combines the advantages of both of the above solutions, as that speculum has a durable metal body and replaceable disposable tips made of plastic.

Disposable specula should be of simple design and at the same time ensure reliable operation during medical examination, and should preferably be made of one piece of material. Efforts to conceive such instruments led to the emergence of just such designs.

US patent no. 6102852 describes a speculum which includes two arms known from metal designs wherein the traditional pivot is replaced with a resilient connector.

Specula known form patent specifications: Japanese JP3026252 and American US5772582, are made of plastic and have crossing arms with appropriately shaped tips resembling truncated cones. Squeezing the arms makes the tips to move apart in the opposite direction.

Another interesting solution, though very complex, is that described in US patent no. 5851177.

A disadvantage of the above-described designs is the relatively large weight and size of the speculum, which undoubtedly translates into increased consumption of materials and higher costs of storage and transportation.

Due to the lack of an arms connecting member near the tips thereof, there is an additional disadvantage consisting in that in the open position the tips of the arms are positioned asymmetrically in the plane of longitudinal section of the instrument. The effect thereof is the obvious lack of comfort during the examination for both the patient and the physician.

The speculum made of one piece of plastic, disclosed in Japanese patent JP871040, provided with a pivot with a common axis of rotation but arranged asymmetrically on only one side of the instrument, enables better control of spreading the tips than in the case of crossing arms, but still it does not eliminate the disadvantages of non-parallel arrangement of the tips in the open position.

The object of the invention is to provide a speculum characterized by low weight and small size, convenient in storage and transport, and ensuring parallel position of the tips at every stage of spreading thereof.

The essence of the speculum design according to the invention is that the instrument is provided with a resilient connector of arms connected centrally in the upper part by means of a catch, which results in smooth and symmetrical spreading of the tips of the arms in the plane of longitudinal section, wherein the entire instrument is made from one piece of material.

The subject of the invention is illustrated by an embodiment shown in drawings, of which:

Fig. 1 shows a perspective view of the speculum;

Fig. 2 shows top view of the speculum and its partial longitudinal section C in the area of the joint between the arms;

Fig. 3 shows enlarged view of the longitudinal section C;

Fig. 4 shows cross section A-A in the area of the joint between the arms;

Fig. 5 shows enlarged view of the cross section A-A;

Fig. 6 shows a perspective view of the disassembled speculum looking from outside;

Fig. 7 shows a perspective view of the disassembled speculum looking from inside.

The speculum according to the invention, assembled and ready to use, has a resilient arc-shaped connector **1** of the arms **2**, said arms connected centrally to one another by means of a catch **3** located in opening **4**, said arms extending beyond the said point of connection in the form of parallel shorter arms **5**, said shorter arms terminating in appropriately shaped members **6** resembling a truncated cone, the speculum being also provided with a lip **7** positioning the arms and with indentations **8** that prevent slipping of the hand when arms **2** are being pressed.

The speculum according to the invention is made from one piece of material, which contributes to material saving, enables complete automation of sterile manufacturing process, and facilitates storage and transport.

Carefully fabricated, smooth and rounded tips of the speculum, and the precise arms that spread in one plane and the ergonomically contoured longer arms of the speculum allow for smooth and accurate manipulating of the tips of the disposable speculum and improve the comfort of the examination.

Claim

A nasal speculum, rhinoscope, designed for examination of the nasal cavity in both humans and animals, made from one piece of material, **characterized in that** it has a resilient arc-shaped connector (1) of the arms (2), said arms connected centrally to one another by means of a catch (3) located in opening (4), said arms extending beyond the said point of connection in the form of parallel shorter arms (5), said shorter arms terminating in appropriately shaped members (6) resembling a truncated cone, the speculum being also provided with a lip (7) positioning the arms of the speculum and with indentations (8).

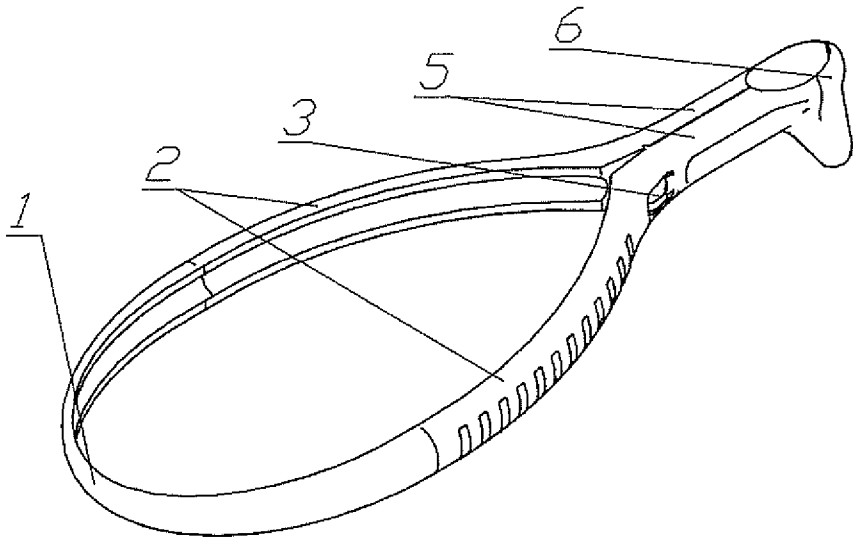

Fig. 1

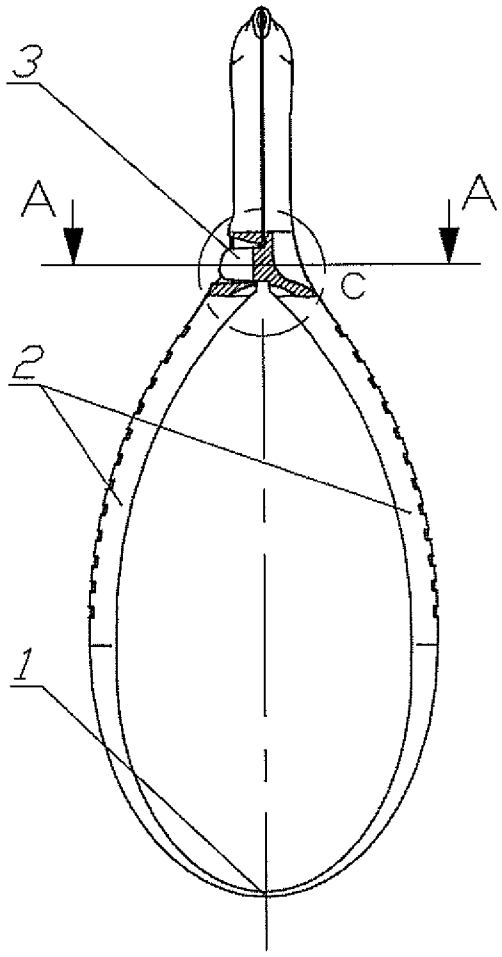

Fig. 2

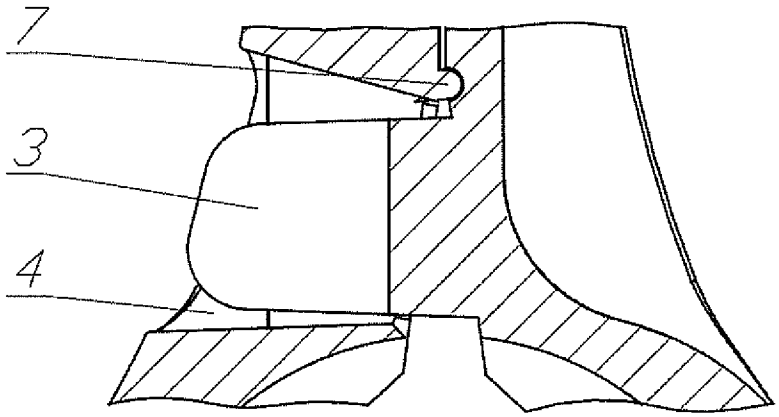

Fig. 3

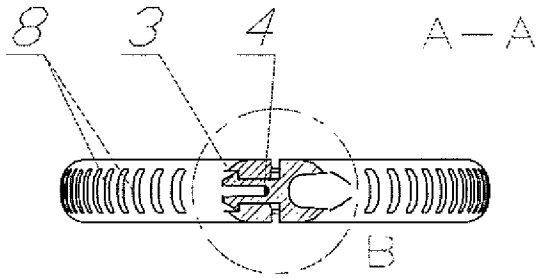

Fig. 4

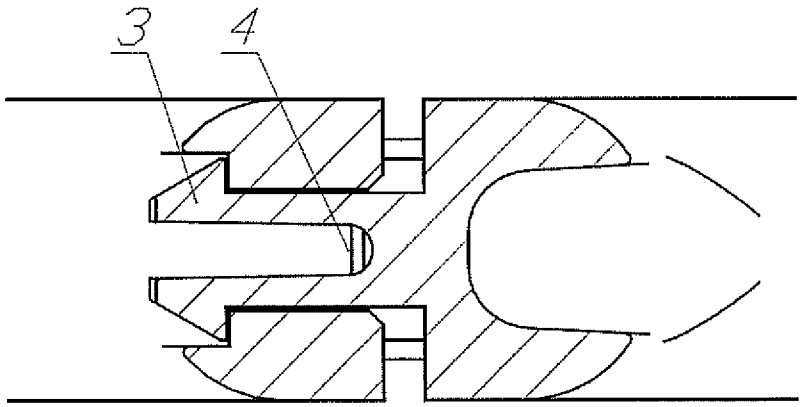

Fig. 5

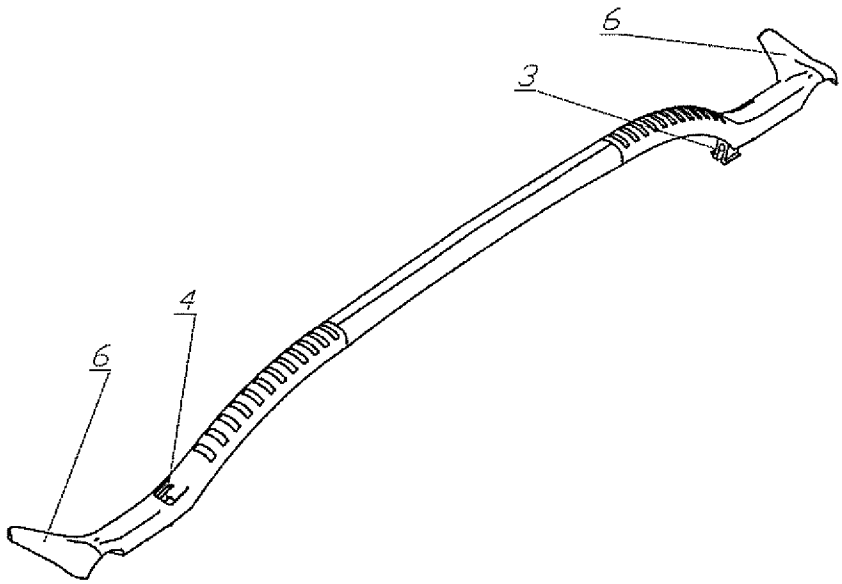

Fig. 6

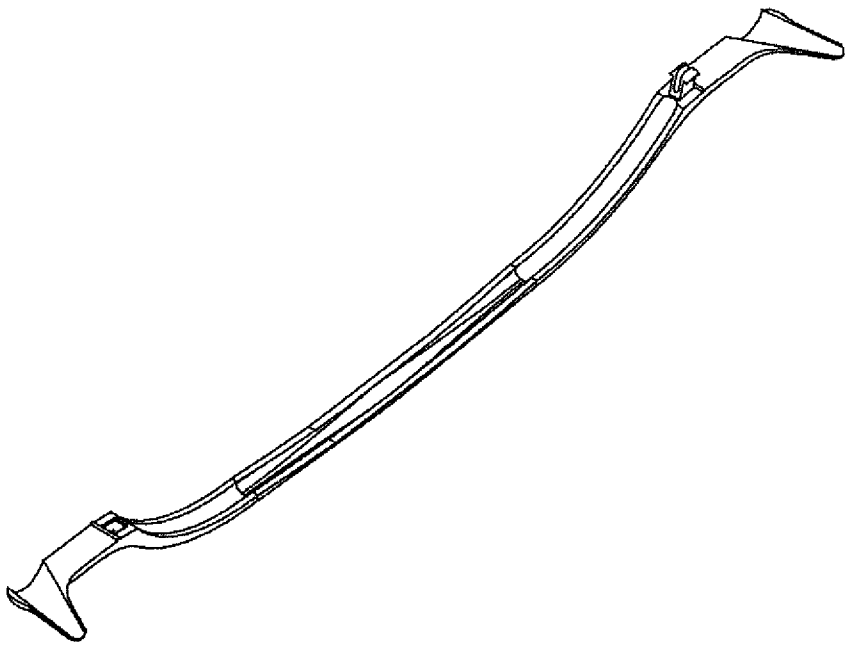

Fig. 7

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B1/233 A61B1/32
ADD.

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)
A61B

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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 772 582 A (HUTTNER JAMES J [US] ET AL) 30 June 1998 (1998-06-30) cited in the application claims 1-13; figures 1-9	1
X	JP H08 71040 A (MAEDA NORIKAZU) 19 March 1996 (1996-03-19) cited in the application abstract; figures 1-3	1
A	US 6 102 852 A (LIU YEN-HUANG [TW]) 15 August 2000 (2000-08-15) cited in the application figures 1-3	1
A	GB 2 436 528 A (OLBERON LTD [GB]) 3 October 2007 (2007-10-03) figures 7-8	1

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 July 2016	24/08/2016

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/PL2016/000054

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/133060 A1 (DOYLE DONALD E [US]) 19 September 2002 (2002-09-19) figures 1-3 -----	1

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/PL2016/000054

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