



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

(43) Date of publication:
29.04.2020 Bulletin 2020/18

(51) Int Cl.:
A45D 26/00 (2006.01)

(21) Application number: **18821584.2**

(86) International application number:
PCT/ES2018/070091

(22) Date of filing: **08.02.2018**

(87) International publication number:
WO 2018/234595 (27.12.2018 Gazette 2018/52)

(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:
MA MD TN

(71) Applicant: **Sanchez Godoy, Jonathan**
11207 Cadiz (ES)

(72) Inventor: **Sanchez Godoy, Jonathan**
11207 Cadiz (ES)

(74) Representative: **Del Valle Valiente, Sonia**
C/ Miguel Angel Cantero Oliva, 5,53
28660 Boadilla del Monte-Madrid (ES)

(30) Priority: **23.06.2017 ES 201730753 U**

(54) **SEMI-AUTOMATIC DEPILATORY TWEEZERS**

(57) The invention relates to semi-automatic depilatory tweezers (1) comprising an open fork (2) with two branches (3, 4) joined by an end area (5), the branches (3, 4) being flexible and the points thereof comprising opposite, facing surfaces (30, 40) of mutual contact for trapping the hair (100) during hair removal when the fork (2) closes, the branches (3, 4) comprising intermediate support areas (31, 41) for pressing with the fingers to cause the fork (2) to close. According to the invention, at least one of the branches (3, 4) of the fork (2) comprises a magnetic section (6) with a magnetic field sufficiently intense to generate magnetic attraction between both branches (3, 4) of the fork, to reduce the manual closing force of the fork (2) when the branches (3, 4) approach one another and facilitate the removal of the hair.

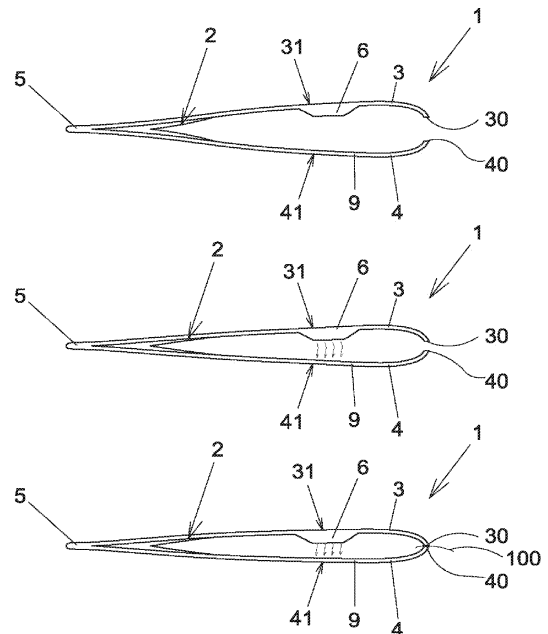


Fig 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to semi-automatic depilatory tweezers.

BACKGROUND OF THE INVENTION

[0002] Depilatory tweezers are known which comprise an open fork with two branches joined by an end area, said branches being flexible in and of themselves and/or around said end area, and the points thereof comprising opposite, facing surfaces of mutual contact for trapping the hair during hair removal when the fork closes, the branches comprising intermediate support areas for pressing with the fingers to cause the fork to close.

[0003] These tweezers work well enough for one-time hair removal, but prolonged use produces seizures and cramps in the muscles that actuate the fingers which hold and close the tweezers (thumb and index, and middle finger sometimes) by continuously repeating the closing and opening actions, and having to keep the pressure on the tweezers so that the hair does not escape.

[0004] This drawback is solved by means of the configuration of the tweezers of the invention.

DESCRIPTION OF THE INVENTION

[0005] The semi-automatic depilatory tweezers of the invention are of the type comprising an open fork with two branches joined by an end area, the branches being flexible and the points thereof comprising opposite, facing surfaces of mutual contact for trapping the hair during hair removal when the fork closes, the branches comprising intermediate support areas for pressing with the fingers to cause the fork to close; and according to the invention, at least one of the branches of the fork comprises a magnetic section with a magnetic field sufficiently intense to generate magnetic attraction between both branches of the fork, to reduce the manual closing force of the fork when the branches approach one another and facilitate the removal of the hair.

[0006] In this manner, the tweezers are configured as a semi-automatic utensil with the following advantages:

- The force used to close the tweezers decreases starting from the second half of the closing path, wherein more pressure is needed.
- It does not cut the hair due to excess force (a common problem), since when it closes and grips the hair during extraction, it doses and regulates the pressure exerted.
- The contacting strike offered by the attraction of the magnet in the complete closure thereof enables better synchronisation of continuous tweezing.

[0007] Furthermore, as an unexpected advantage dur-

ing the development of the prototype and testing, it has been seen that in each tweezing motion, if a hair is inside the sound made is different from when it is not, thus detecting whether or not the hair has been tweezed. We can also use this sound feature to check if the opposite surfaces of mutual contact are clean or have been cleaned properly.

[0008] Approximately starting from the second half of the closing path, the magnetic sections begin to exert enough magnetic attraction to reduce the pressure that we manually exert in order to close them. Furthermore, the final contacting strike helps to better synchronise a continuous closing-opening exercise. The magnetic attraction force even regulates and doses the pressure exerted on the hair when it is held, helping the hair to not be cut or broken due to excess force, which is a very common problem.

DESCRIPTION OF THE DRAWINGS

[0009]

Figure 1 shows three views of a variant of the tweezers of the invention wherein there is a magnetic section in a first branch, the second branch comprising in a position facing said magnetic section of the first branch a portion made of material able to be attracted by said magnetic section.

Figure 2 shows three views of another variant of the tweezers of the invention comprising two facing magnetic sections, one on each branch, with opposite, facing polarities.

PREFERRED EMBODIMENT OF THE INVENTION

[0010] The semi-automatic depilatory tweezers (1) of the invention are of the type comprising an open fork (2) with two branches (3, 4) joined by an end area (5), the branches (3, 4) being flexible and the points thereof comprising opposite, facing surfaces (30, 40) of mutual contact for trapping the hair (100) during hair removal when the fork (2) closes, the branches (3, 4) comprising intermediate support areas (31, 41) for pressing with the fingers to cause the fork (2) to close, and according to the invention, at least one of the branches (3, 4) of the fork (2) comprises a magnetic section (6) with a magnetic field sufficiently intense to generate magnetic attraction between both branches (3, 4) of the fork, to reduce the manual closing force of the fork (2) when the branches (3, 4) approach one another and facilitate the removal of the hair.

[0011] In one possible embodiment, shown in fig. 1, the tweezers (1) comprise a magnetic section (6) in a first branch (3), the second branch (4) comprising in a position facing said magnetic section (6) of the first branch (3) a portion (9) made of magnetic material (which is able to be attracted by said magnetic section (6), for example a ferromagnetic material), which in this partic-

ular example encompasses at least all of said second branch (4). The tweezers (1) could even be manufactured entirely from said magnetic material, thus having to install a single magnet or magnetic section (6) in one of the branches of the tweezers.

[0012] In another possible embodiment, shown in fig. 2, the tweezers (1) comprise two facing magnetic sections (6), one on each branch (3, 4), with opposite, facing polarities. This makes it possible to make the fork from nonmagnetic materials, installing two or more magnetic sections (6) with different poles in each branch.

[0013] Most preferably, the magnetic sections (6) comprise permanent magnets since this does not require any type of power supply.

[0014] Finally, it should be indicated that ideally the magnetic sections (6) have features such that the magnetic attraction force the branches (3, 4) of the fork (2) undergoes in the closed position of the tweezers (1) is less than the opening elastic force of the fork from said closed position, which in each case depends on the configuration of the fork, and the magnets are sized based on this. Thus, when opening again, the user stops applying the little force necessary to close the tweezers (1). When performing this action, the magnetic sections (6) momentarily resist this separation and are suddenly released, offering a recoil or opening speed much greater than that of conventional tweezers. This causes a small vibration due to the force with which the branches are separated, offering a greater probability that the hair will detach from the tweezers (1).

[0015] Having sufficiently described the nature of the invention, it is indicated that the description of it and of the preferred embodiment thereof should be interpreted in a non-limiting manner, and that it encompasses all the possible variant embodiments that may be deduced from the contents of the present specification and the claims.

Claims

1. A semi-automatic depilatory tweezers (1) comprising an open fork (2) with two branches (3, 4) joined by an end area (5), the branches (3, 4) being flexible and the points thereof comprising opposite, facing surfaces (30, 40) of mutual contact for trapping the hair (100) during hair removal when the fork (2) closes, the branches (3, 4) comprising intermediate support areas (31, 41) for pressing with the fingers to cause the fork (2) to close; **characterised in that**, at least one of the branches (3, 4) of the fork (2) comprises a magnetic section (6) with a magnetic field sufficiently intense to generate magnetic attraction between both branches (3, 4) of the fork, to reduce the manual closing force of the fork (2) when the branches (3, 4) approach one another and facilitate the removal of the hair.

2. The semi-automatic depilatory tweezers (1) accord-

ing to claim 1 **characterised in that** they comprise a magnetic section (6) in a first branch (3), the second branch (4) comprising in a position facing said magnetic section (6) of the first branch (3) a portion (9) made of material able to be attracted by said magnetic section (6).

3. The semi-automatic depilatory tweezers (1) according to claim 2 **characterised in that** the portion (9) encompasses at least all of said second branch (4).

4. The semi-automatic depilatory tweezers (1) according to claim 1 **characterised in that** they comprise two facing magnetic sections (6), one on each branch (3, 4), with opposite, facing polarities.

5. The semi-automatic depilatory tweezers (1) according to any of the preceding claims **characterised in that** the magnetic sections (6) comprise permanent magnets.

6. The semi-automatic depilatory tweezers (1) according to any of the preceding claims **characterised in that** the magnetic sections (6) have features such that the magnetic attraction force received by the branches (3, 4) of the fork (2) in the closed position of the tweezers (1) is less than the opening elastic force of the fork from said closed position.

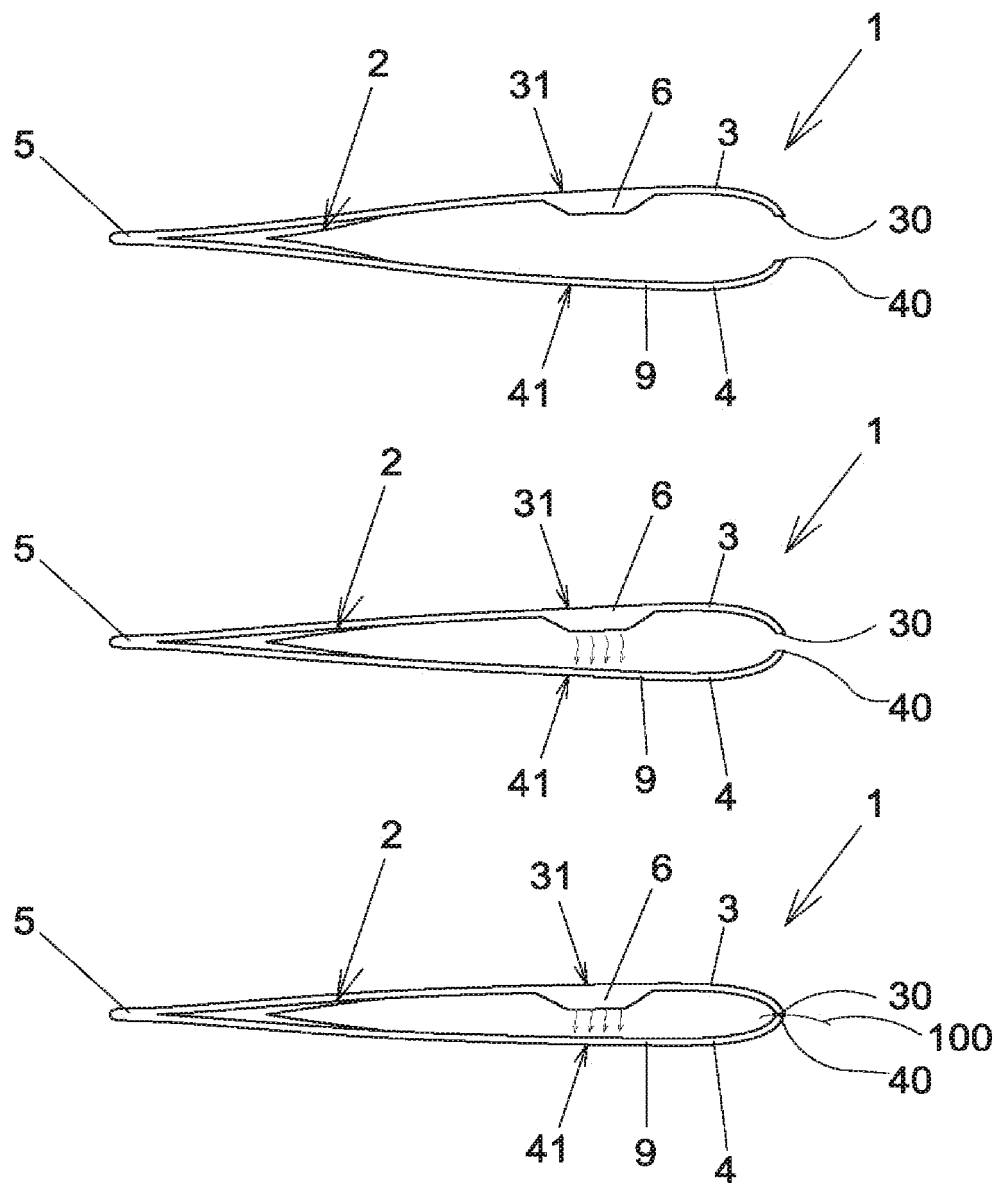


Fig 1

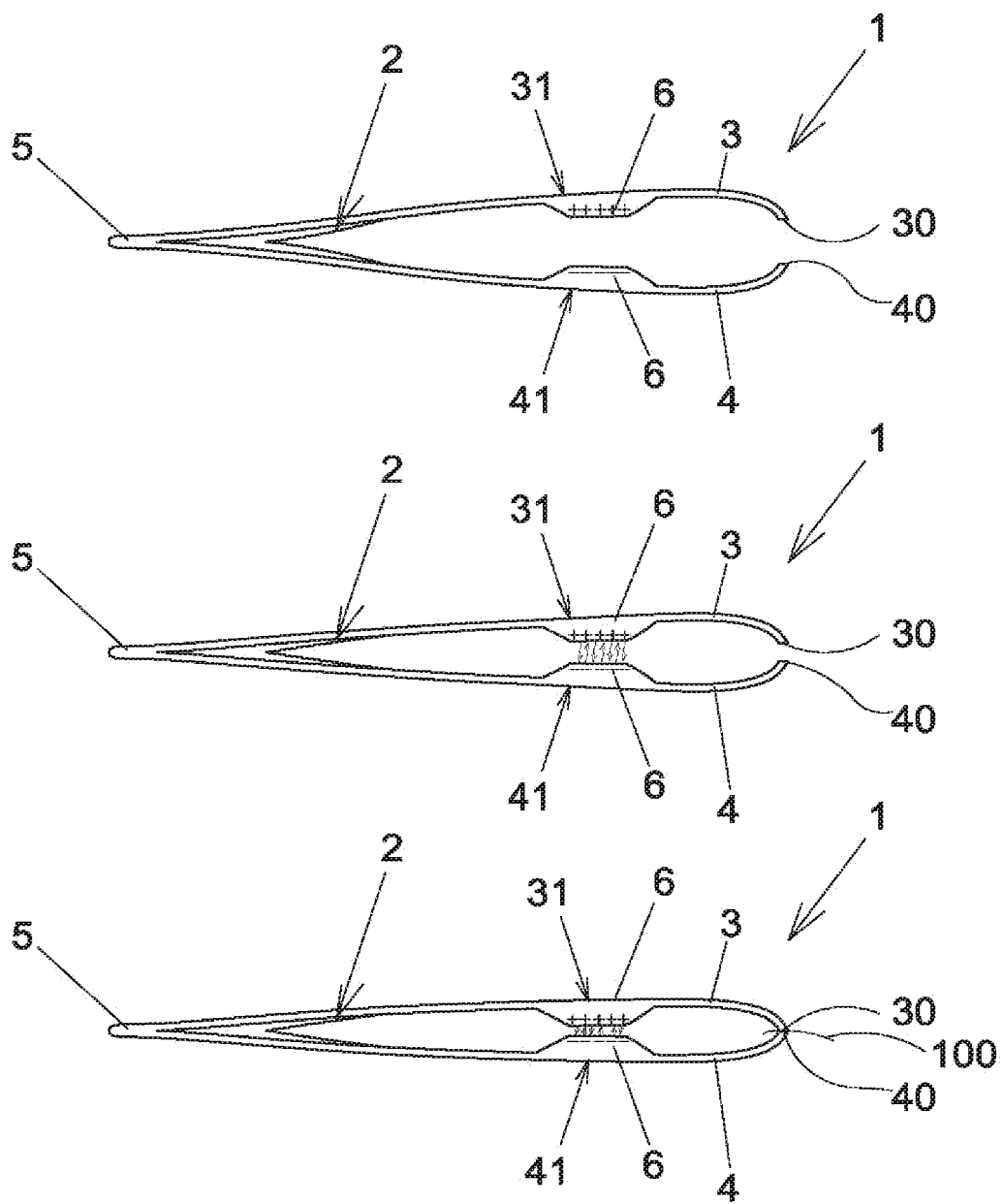


Fig 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2018/070091

A. CLASSIFICATION OF SUBJECT MATTER

A45D26/00 (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)
A45D

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

A47J, A61B

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

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ES 0009462 U (DOMÉNECH, GODAY Y COMPAÑÍA) 01.05.1944, FIG. 1 AND 2	1-5
A	ES 0020756 U (CASANANOVA SAGRISTA, NAPOLEÓN) 16/09/1949, FIG. 1-3	1-5
A	ES 0030572 U (GARCÍA CATA, JOSÉ MARÍA) 01/05/1952, FIG. 1 AND 2	1-5

☐ 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.

"E" earlier document but published on or after the international filing date

"L" 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)

"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

"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 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
17/05/2018

Date of mailing of the international search report
(25/05/2018)

Name and mailing address of the ISA/

Authorized officer
M. García Coca

OFICINA ESPAÑOLA DE PATENTES Y MARCAS
Paseo de la Castellana, 75 - 28071 Madrid (España)
Facsimile No.: 91 349 53 04

Telephone No. 91 3493411

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2018/070091

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.: **6**
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:

Claim 6 contains no technical features (PCT Rule 6.3).

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:

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.