(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 744 212 A1**

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

(43) Date of publication:
02.12.2020 Bulletin 2020/49

(21) Application number: **19743132.3**

(22) Date of filing: **28.01.2019**

(51) Int Cl.:
A45D 26/00 *(2006.01)* ***A45D 1/02*** *(2006.01)*

(86) International application number:
PCT/ES2019/070039

(87) International publication number:
WO 2019/145590 (01.08.2019 Gazette 2019/31)

(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

(30) Priority: **25.01.2018 ES 201830066**

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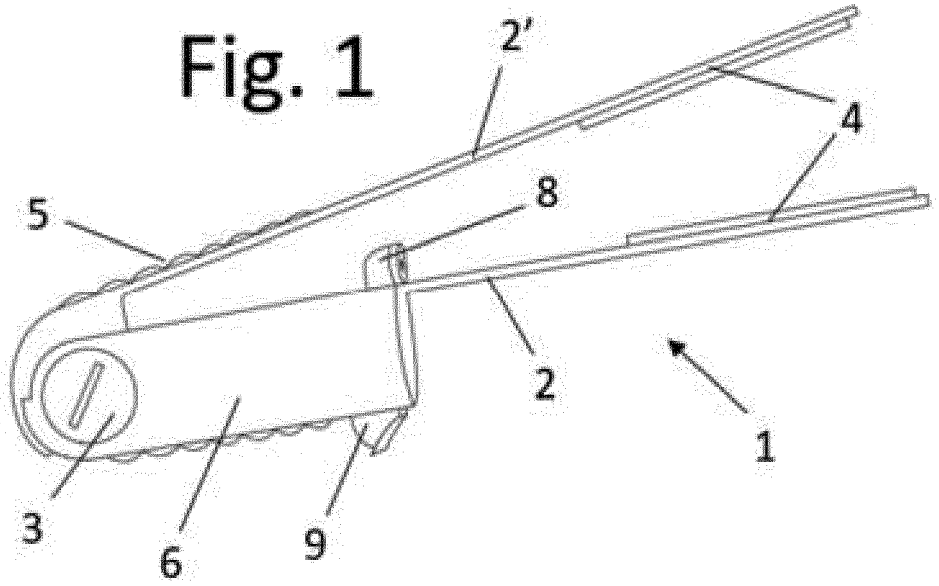
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(54) **FIRE-BASED CUTTING TOOL AND USE THEREOF**

(57) The invention relates to a fire-based cutting tool comprising a pair of tongs (1) formed by two blades (2,2') connected by a shaft (3) and equipped with respective handles (5) and respective grip portions (4) for gripping the object supported by the tongs (1). According to the invention, the first blade (2) comprises: a burner (6) having a tip (8) disposed on one side of the rotation plane of the shaft (3), parallel with the blades (2,2') and an activation button (9) that can be accessed from the handle (5) of the first blade (2). The grip portions (4) can include respective guards (10) to block the passage of the flame or heat, as well as optionally including grooves forming a comb (11).The preferred used of the tool is for cutting hair.

Fig. 1



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Description

TECHNICAL FIELD

[0001] The present invention relates to a fire-based cutting tool which uses fire and is particularly useful in hairdressing salons. This also relates to its operating procedure.

BACKGROUND OF THE INVENTION

[0002] One of the current hairdressing techniques is to singe the ends of the hair with a flame. For this, candles and other such flames are used. Thus, the flame is always on, which increases safety risks, and the cut itself has to be done with scissors or another tool.

[0003] In addition, WO2005117640 is a well-known body hair-removing method which uses a burner flame.

[0004] The applicant does not know of any other tool that could be considered similar to this invention.

DESCRIPTION OF THE INVENTION

[0005] The invention consists of a hairdressing tool that cuts with a flame. This tool, with its different applications, resolves the background of the invention's previous problems. This document also relates to its operating procedure.

[0006] Prior to describing the invention, firstly, the 'rotation plane of the shaft' is defined as the perpendicular plane to said shaft that passes through its midpoint.

[0007] The fire-based cutting tool is comprised of a pair of tongs formed by two long arms joined by a shaft. Each arm has a handle and a gripping part for the object held by the tongs. The first arm has a burner with a nozzle on one side of the rotating shaft, facing the contact zone of the gripping parts. The nozzle is parallel to the arms so that the flame produced does not intersect with them but is kept close to the rotating shaft (and the gripping parts). The burner also consists of an activation button, which is attached to the handle of the first arm, preferably including safety measures such as those cited later on in the document.

[0008] Preferably, the tongs shall be of a type where the handles are placed between the shaft and the gripping parts, although it may be of a 'scissor' type.

[0009] The burner comprises a fuel tank that would normally be contained in the first arm.

[0010] It would be desirable for the burner to produce a flame that is at least 5cm in length. For this, the fuel tank pressure and the design of the nozzle will be combined.

[0011] As a safety measure for the user and for the person receiving the haircut, the gripping parts each have a safety guard that prevent the flame from being projected sideways. These safety guards increase in thickness (along the rotating shaft), which prevents heat from reaching the customer. One of the guards can be made into a comb by creating a set of narrow teeth.

[0012] As a safety measure, it is recommended to include a cap, or a removable spring safety catch on the button, in such a way that the user cannot accidentally press the button at the wrong time. It also works as a "deadman" system to ensure that the flame cuts out if the device is dropped.

[0013] A second measure, compatible with the first, is an activator on the button or on the burner, attached to the first arm, in the interior, and oriented towards the second arm. In this way, the burner can only be activated when the tongs are closed.

[0014] The intended use of this tool is for cutting hair.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] To better understand the invention, the following figures have been included.

Figure 1: schematic view of a first example of production of the invention from a perpendicular angle to the rotating shaft.

Figure 2: schematic view of a second example of production, with a scissor type gripper.

Figure 3: details of a third example of production, more complete.

METHODS OF THE EMBODIMENT OF THE INVENTION

[0016] The following is a brief description of methods for creating the invention, as an illustrative example but it is not limited to this.

[0017] The cutting tool shown in figure 1 corresponds to a pair of tongs (1) that have two long arms (2, 2') joined by a common shaft (3). Each arm (2, 2') can be divided into a hair gripping part and a handle (5). Depending on the type of tongs (1), the handle (5) will be between the shaft (3) and the gripping part (4) or on the opposite end of the gripping part (4). In general, for ergonomic purposes, it is better for the handle (5) to be between the shaft (3) and the gripping part (4) (figure 1).

[0018] As it can be seen, the arms (2, 2') are not identical, but rather the handle (5) of one of them (called the "first arm (2)") has a burner (6) with a fuel tank (7), a nozzle (8) and a button (9). The burner (6) can also have an inlet to refill the tank (7) and/or be detachable from the handle (5) for refilling or for replacement. A more complicated solution would be to have an external tank (7) connected to the nozzle (8) through a tube. However, this is less preferable given that it is not as safe.

[0019] The nozzle (8) of the burner (6) is attached to one side of the arm (2), so that when the tongs (1) are closed and are clasping an object, the nozzle (8) points towards one of the halves of the object. So, turning on the burner (6) with the button (9) results in the burning

of this part of the object.

[0020] It is important for the tank (7) to maintain enough pressure, so the flame from the nozzle (8) can be kept under control. This means that the flame will not be affected by draughts of air and is always straight. The cut will therefore be uniform and will be able to reach a relatively large area (from 4-5 to 10-15cm in length for cutting hair, or a shorter length for other uses). Thus, the hair can be laid flat, along the entire length of the gripping parts (4) and the cut is easier and more uniform. The design of the nozzle (8) can also help adjust the flame in order to correctly cover the area to be cut. One such example of a nozzle (8) would be that of a propane torch used to remove paint or that used as a pipe lighter or a blowtorch. However, this type of nozzle (8) and reservoir (7) are well known and so do not require any further explanation. The nozzle (8) would preferably have a piezoelectric activation and have three or more outlets, in order to ensure that it lights properly and that the flame is maintained.

[0021] It is recommended that the gripping part (4) of the arms (2, 2') form a guard (10); for example, by making them very thick (more than 1.5cm, preferably 2cm) on the rotating shaft (3). Thus, a protective barrier is created from the rest of the hair. Preferably, on one arm (2, 2') the thickness will be great enough to form a guard (10) or barrier, whilst on the other arm thickness will also be great enough to provide protection but consists of teeth to make a comb (11). The guard (10) can be flat or curved to adapt to the position of the hand and/or to collect the ash. It can also be continuous or be made narrower as it moves away from the nozzle (figure 3).

[0022] In this manner, the user can use the comb (11) of the tongs (1) to section off a piece of hair that they wish to cut, pick it up with the other hand and clasp it with the tongs (1) in order to free the hand. Then, the burner (6) is lit to cut and cauterise the hair in one single action.

[0023] The clamping arms (2, 2') can be designed in various shapes and sizes according to different needs and can even be interchangeable so that the tool can better adapt to the needs of the user. In other words, it can be dismantled in order to change or remove the type of guard (10), comb (11) ... It is better for the second arm (2') to be the one that completely or partly detaches.

[0024] The button (9) will ideally have some type of safety measure to prevent it from accidentally being turned on. This can either be a cap, or a safety catch (not shown) that prevents it from clamping if it is not removed by hand against a spring, or an activator (12) on the first arm (2) facing the second arm (2'). This activator (12) will be near the gripping parts (4) of the arms (2, 2'), so that the burner (6) cannot activate itself if the gripping parts (4) are not close together.

[0025] All the materials used must be resistant to high temperatures, especially the gripping parts (4). In turn, the handles (5) should consist of thermal protection for the burner (6) and for the user's hands. It is also of interest to cover the side of the tongs (1) opposite the burner (6) with thermal protection, like an insulating paint, for example. As such, even if the burner (6) is used too often, the side pointing towards the client will not be as hot as the opposite one. In any case, as the flame is parallel to the arms (2, 2') and has a large surface area to dispel heat, the temperature will never be too excessive.

[0026] In figure 3, three additional options are offered to enhance the tongs (1). The first option comprises of two silicone strips (13) or any other soft, heat-resistant material. These strips (13) would be placed on the gripping parts (4) of the tongs (1), to ensure that the hair is firmly kept in place. This would be placed on the edge of the arms (2, 2') so that part of it will protect them from the flame.

[0027] The second addition is a tail comb (14) on the free guard (10) without the comb (11), so as to allow the user to better section off the client's hair, marking the parting.

[0028] Finally, the third addition is a centring piece (15, 15'), placed at the end of the gripping parts (4), that comprises a wedge-shaped protrusion (15) on one arm (2, 2') and a complementary slot (15') on the other. This centring piece (15, 15') ensures that the arms (2, 2') stay perfectly aligned when the tongs (1) are closed. In this manner, the burner (6) can be entirely parallel to both. Other examples of centring pieces (15, 15') are: cone-shaped protrusions with their complementary slots, two symmetrical and divergent wedge-shapes on an arm (2, 2') that clasp the other one ...

Claims

1. Fire-based cutting tool, **characterised in that** it consists of a pair of tongs (1) formed of two long arms (2, 2') joined by a shaft (3) each with handles (5) and each with gripping parts (4) for the object held by the tongs (1), where the first arm (2) comes with a burner (6) producing a controlled flame, with a nozzle (8) placed on one side of the rotating shaft (3) facing the contact zone of the gripping parts (4) and parallel to the arms (2, 2') and It also comprises an activation button (9) on the side of the handle (5) of the first blade (2).

2. Tool, according to claim 1, wherein the handles (5) are placed between the shaft (3) and the gripping parts (4)

3. Tool, according to claim 1, wherein the burner (6) comprises a fuel tank (7) in the first arm.

4. Tool, according to claim 1, wherein the burner (6) produces a straight flame of at least 5 cm.

5. Tool, according to claim 1, wherein the gripping parts (4) have safety guards (10) that prevent the flame or heat from passing through to the side.

6. Tool, according to claim 5, wherein the guard (10) on at least one of the arms (2, 2') comprises teeth to make a comb (11).

7. Tool, according to claim 1, which has a second detachable arm (2') opposite the first arm (2).

8. Tool, according to claim 1, wherein the button (9) consists of a cap or a spring safety catch.

9. Tool, according to claim 1, which comprises an activator (12) on the button (9) or on the burner (6) attached to the interior of the first arm (2) and facing the second arm (2').

10. Tool, according to claim 1, which is covered in thermal protection on the side of the arms (2, 2') opposite the burner.

11. Tool, according to claim 1, wherein the gripping parts (4) each comprise strips (13) of a soft, heat-resistant material.

12. Tool, according to claim 6, which includes a tail comb (14) on the free end of the arm (2,2') opposite the comb (11).

13. Tool, according to claim 1, which comprises of a centring piece (15, 15') on the two arms (2, 2') to ensure they are kept perfectly aligned.

14. Use of fire-based cutting tool according to any of the claims from 1 to 13 to cut hair.

Fig. 1

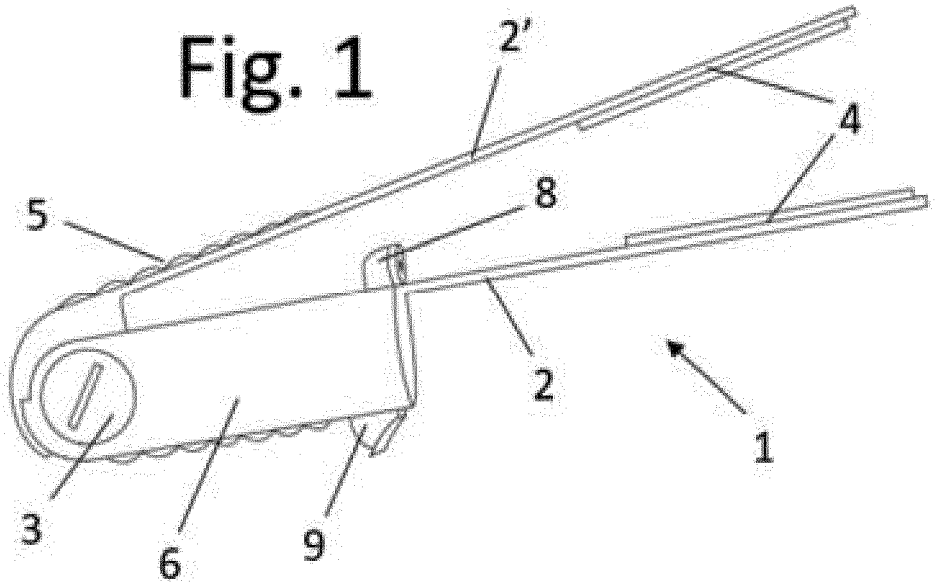
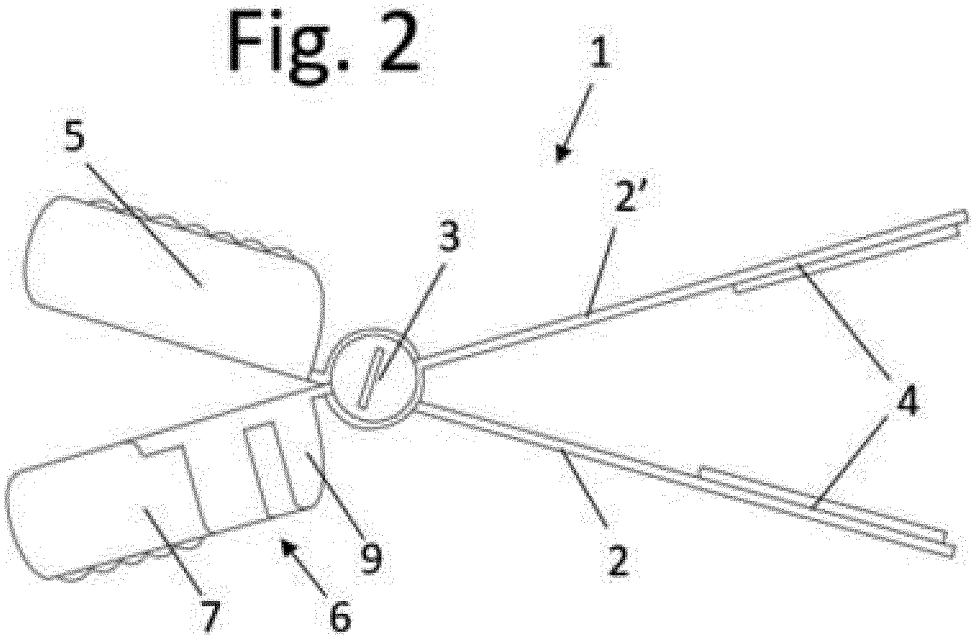


Fig. 2



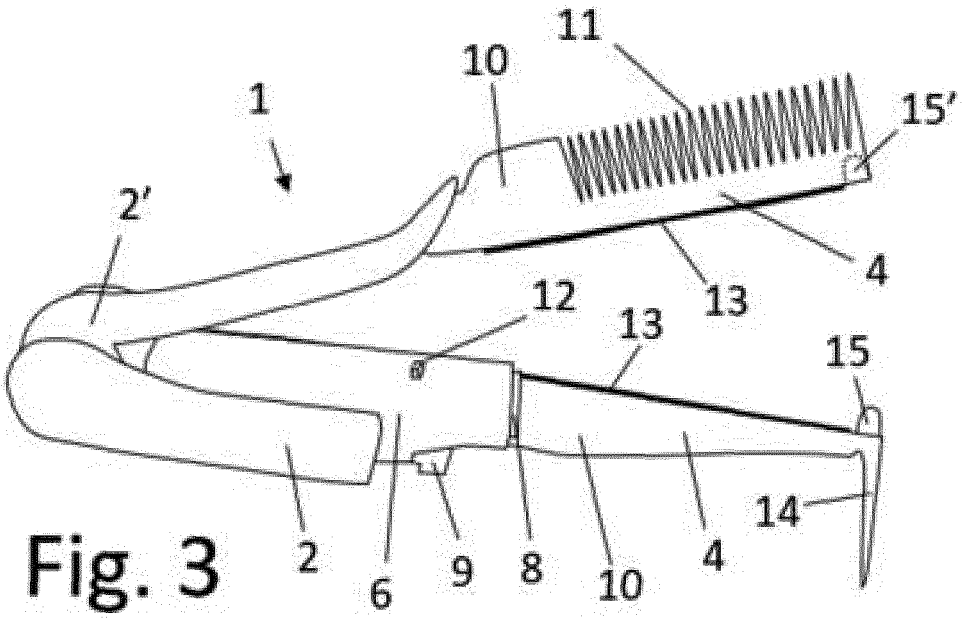


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070039

A. CLASSIFICATION OF SUBJECT MATTER

A45D26/00 (2006.01)
A45D1/02 (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

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.
X	US 5472654 A (CRAWFORD MARGARET A) 05/12/1995, figures 1, 2, 7, 8, 10; description, col. 3 and 4	1-14
A	US 2007107746 A1 (RANDOLPH MARY J) 17/05/2007, paragraphs [0013], [0031]-[0033], figures	1-14
A	JP H07213331 A (NIPPON SOLID CO LTD) 15/08/1995, paragraphs [0008]-[0024], figures 1 and 2	1-14
A	US 2004003824 A1 (HABIBI MASOOD) 08/01/2004, paragraph [0038]; figure 1	1-14
A	US 2015150350 A1 (KOCK MARWIN) 04/06/2015, paragraph [0011], figures	1-14

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

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"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
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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
13/06/2019	**(20/06/2019)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer M. Contreras Beramendi Telephone No. 91 3495450

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070039

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2015216280 A1 (SAYERS STEPHEN ANTHONY ET AL.) 06/08/2015, paragraphs [0059], [0135]; figures 2a, 8a	1-14

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

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2019/070039

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US5472654 A	05.12.1995	NONE	
US2007107746 A1	17.05.2007	NONE	
JPH07213331 A	15.08.1995	NONE	
US2004003824 A1	08.01.2004	EA200401215 A1	25.08.2005
		EA008217 B1	27.04.2007
		US7341064 B2	11.03.2008
		WO03077702 A2	25.09.2003
		WO03077702 A3	22.01.2004
		MXPA04008975 A	17.06.2005
		EP1487295 A2	22.12.2004
		CN1989870 A	04.07.2007
		CN1989870B B	26.05.2010
		CN1989869 A	04.07.2007
		CN100484432C C	06.05.2009
		CN1649523 A	03.08.2005
		CN1315422C C	16.05.2007
		CA2479160 A1	25.09.2003
		CA2479160 C	31.08.2010
		BR0308469 A	25.01.2005
		AU2003220386 A1	29.09.2003
		AU2003220386B B2	14.02.2008
US2015150350 A1	04.06.2015	JP2015107328 A	11.06.2015
		DE202013105507U U1	05.03.2015
US2015216280 A1	06.08.2015		26.05.2017
		ES2613840T T3	27.02.2017
		DK2884866T T3	26.12.2017
		US9848683 B2	29.04.2015
		CN104582524 A	26.09.2017
		CN104582524B B	26.02.2015
		AU2013304809 A1	08.06.2017
		AU2013304809B B2	26.02.2014
		GB2505258 A	24.06.2015
		EP2884866 A1	30.11.2016
		EP2884866 B1	27.02.2014
		WO2014029980 A1	29.01.2015
		WO2014029980 A9	26.02.2014
		GB2505269 A	28.02.2018
		GB2505269 B	26.02.2014
		GB2505171 A	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2005117640 A **[0003]**