SPRUSON & FERGUSON

COMMONWEALTH OF AUSTRALIA
PATENTS ACT 1952

DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT

In support of the Convention Application made for a patent for an invention entitled:

Improvement in or Relating to Safety Razors

I, Kathryn Estelle DeMoss, of 24 Colburn Drive, Sharon, Massachusetts 02067, United States of America do solemnly and sincerely declare as follows:-

1. I am authorised by The Gillette Company, the applicant for the patent to make this declaration on its behalf.

2. The basic application as defined by Section 141 of the Act was made in Great Britain on 8 May, 1987 by The Gillette Company.

3. JOHN FREDERICK FRANCIS, of 17 Old Malt Way, Horsell, Woking, Surrey, Great Britain, is the actual inventor of the invention and the facts upon which the applicant is entitled to make the application are as follows:

   The said applicant is the assignee of the actual inventor.

4. The basic application referred to in paragraph 2 of this Declaration was the first application made in a Convention country in respect of the invention the subject of the application.

DECLARED at Boston, this 31st day of March 1989

Kathryn Estelle DeMoss
Signature of Declarant
Kathryn Estelle DeMoss, Secretary

TO: THE COMMISSIONER OF PATENTS
AUSTRALIA

SBR/JS/0134F

(12) PATENT ABRIDGMENT (11) Document No. AU-B-17243/88
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 609138

(54) Title
IMPROVEMENTS IN OR RELATING TO SAFETY RAZORS

International Patent Classification(s)
(51)[4] B26B 021/22 B26B 021/40

(21) Application No. : 17243/88 (22) Application Date : 18.04.88

(87) WIPO Number : WO8 /08776

(30) Priority Data

(31) Number	(32) Date	(33) Country
8710963	08.05.87	GB UNITED KINGDOM

(43) Publication Date : 06.12.88

(44) Publication Date of Accepted Application : 26.04.91

(71) Applicant(s)
THE GILLETTE COMPANY

(72) Inventor(s)
JOHN FREDERICK FRANCIS

(74) Attorney or Agent
SPRUSON & FERGUSON, GPO Box 3898, SYDNEY NSW 2001

(56) Prior Art Documents
US 4063354
US 3909942
US 3909941

(57) Claim

1. A razor head including a body, said body having blade mounting means thereon, a guard member, said body and guard member being formed as a unitary plastics moiding in which said guard member is connected to said body by resilient fingers, said resilient fingers permitting movement of said guard member from the initial molded position to an operative position in which said guard member is entrained in guide means on said body and in which said guide means are in engagement with portions of said guard member, such that said resilient fingers permit said guard member to move dynamically during a shaving operation, said guide means confining said movement of said guard member to a reciprocatory movement on said body.

AUSTRALIA PATENT (51)27.01.89 (43) 6.12.88 AU-A-17243/88
PCT
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau
600138
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 4 : B26B 21/22 — A1

(11) International Publication Number: WO 88/ 08776

(43) International Publication Date: 17 November 1988 (17.11.88)

(21) International Application Number: PCT/US88/01343

(22) International Filing Date: 18 April 1988 (18.04.88)

(31) Priority Application Number: 8710963

(32) Priority Date: 8 May 1987 (08.05.87)

(33) Priority Country: GB

(71) Applicant *(for all designated States except US)*: THE GILLETTE COMPANY [US/US]; Prudential Tower Building, Boston, MA 02199 (US).

(72) Inventor; and

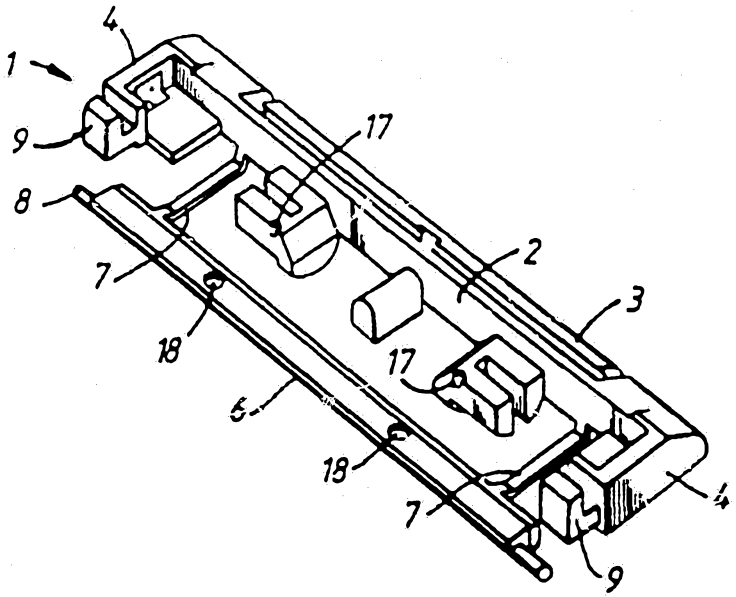
(75) Inventor/Applicant *(for US only)* : FRANCIS, John, Frederick [GB/GB]; 17 Old Malt Way, Horsell, Woking, Surrey (GB).

(74) Agents: GALLOWAY, Peter, D. et al.; Ladas & Parry, 26 West 61 Street, New York, NY 10023 (US).

(81) Designated States: AU, BR, JP, KR, US.

Published
With international search report.

(54) Title: IMPROVEMENTS IN OR RELATING TO SAFETY RAZORS



(57) Abstract

A razor formed as a unitary molding comprises a main body (1) including a cap member (3) and two side walls (4) and a guard member (6) connected to the body (1) by spring fingers (7) and living hinges which permit the guard member to be located in guide means (9) which guide the guard member for limited displacement during shaving.

This invention relates to safety razors, and in particular to razor heads, or cartridges, having guard members which are resiliently displaceable in reaction to the forces encountered during shaving.

Razor heads or cartridges of this form are described, for example, in British Patent Specifications 1566505, 2131337 and 2064410.

The present invention is particularly concerned with the construction of a cartridge body which permits of its being formed as a unitary plastics moulding incorporating the guard member and spring means for its resilient mounting relative to the main body of the cartridge.

According to the present invention there is provided a razor head including a body, said body having blade mounting means thereon, a guard member, said body and guard member being formed as a unitary plastics molding in which said guard member is connected to said body by resilient fingers, said resilient fingers permitting movement of said guard member from the initial molded position to an operative position in which said guard member is entrained in guide means on said body and in which said guide means are in engagement with portions of said guard member, such that said resilient fingers permit said guard member to move dynamically during a shaving operation, said guide means confining said movement of said guard member to a reciprocatory movement on said body.

In the cartridge described below, the guard member, in the form of an elongate bar, is integrally connected to the rest of the body by resilient fingers incorporating living hinges permitting the bar to be displaced from its original moulded position into engagement with guide means in the body, so that the bar is resiliently displaceable relative to the rest of the body in use of the cartridge.

This cartridge will now be described in detail, by way of example, with reference to the accompanying

drawings, in which:

Fig. 1 is a perspective view of the cartridge body "as moulded";

Figs 2 and 3 are end views showing the guard bar in its moulded and its assembled position,

respectively;

Fig. 4 is an exploded perspective view of the completed cartridge body and a tandem blade unit for mounting therein; and

Fig. 5 is a cross-section of the assembled cartridge.

Fig. 1 shows the integrally moulded cartridge body 1 in its condition "as moulded". It comprises: a rear wall 2, whose upper surface 3 is destined to form a cap to the rear of the blades; opposite side walls 4; and a guard bar 6 integrally connected to the rear wall by spring fingers 7. The ends of the bar 6 are provided with projecting pins 8 for eventual location in guide brackets 9 at the forward ends of the side walls 4.

As best seen in Figs. 2 and 3, the junctions between the free ends of fingers 7 and the guard bar 6 are of reduced cross-section to form living hinges 11. After moulding, the guard bar is swung upwardly, in an anti-clockwise direction (as viewed in Figs. 2 and 3), to bring the pins 8 up and over the brackets 9, with some resilient deflection of the spring fingers 7, to assume the assembled position seen in Fig. 3, in which the pins are guided for movement relative to the rest of the cartridge body in a vertical direction, assuming the cartridge to be in a horizontal attitude.

As illustrated in Fig. 4, the cartridge body now forms a generally rectangular open frame for reception and location of a blade unit 12, formed in this example by a pair of narrow blade strips 13 each secured to wire like supports 14 held in spaced parallel relation by end clips 16. These clips are secured with the cartridge and provide for resilient mounting of the blades which are independently sprung so as to be urged upwardly but displaceable downwardly in response to forces encountered during shaving.

Fig. 5 shows a cross-section of the

assembled cartridge and a notional tangent plane T containing the upper surfaces of the guard bar in a medial position and cap. In use of the cartridge, each of the blades and guard bar are resiliently displaceable downwardly in directions perpendicular to the tangent plane T in response to forces encountered during shaving.

As best seen in Fig. 5, upward movement of the guard bar 6 is limited by the interengagement of projections 17 at the front of the body 1 in circular recesses 18 formed in the inner surface of the bar 6.

It will be understood that the term vertically and horizontally are employed herein for the purposes of description and that the cartridge will adopt many different attitudes in use.

The claims defining the invention are as follows:

1. A razor head including a body, said body having blade mounting means thereon, a guard member, said body and guard member being formed as a unitary plastics molding in which said guard member is connected to said body by resilient fingers, said resilient fingers permitting movement of said guard member from the initial molded position to an operative position in which said guard member is entrained in guide means on said body and in which said guide means are in engagement with portions of said guard member, such that said resilient fingers permit said guard member to move dynamically during a shaving operation, said guide means confining said movement of said guard member to a reciprocatory movement on said body.

2. A razor head according to claim 1 wherein said guide means include open-ended slots and said portions of said guard member in engagement with said guide means include end portions of said guard member disposed in said slots, respectively.

3. A razor head according to claim 2 wherein said end portions of said guard member include pins at ends of said guard member.

4. A razor head according to claim 1 wherein said resilient fingers are provided with portions of reduced cross-section to form living hinges.

5. A razor head according to claim 4 wherein said body includes a rear wall having a skin-engaging surface, side walls projecting forwardly from said rear wall, said resilient fingers projecting forwardly from said rear wall and being connected to said guard ember, and wherein the guide means includes open ended slots formed near forward ends of said side walls, said guard member being engageable in and dynamically movable in said slots by flexure of said resilient fingers and said hinges.

6. A razor head according to claim 5, wherein said body and guard members are formed with co-operating abutment means serving to limit movement of said guard member in said slots.

7. A razor head substantially as hereinbefore described with reference to the accompanying drawings.

DATED this SIXTEENTH day of JANUARY 1991
The Gillette Company

Patent Attorneys for the Applicant
SPRUSON & FERGUSON

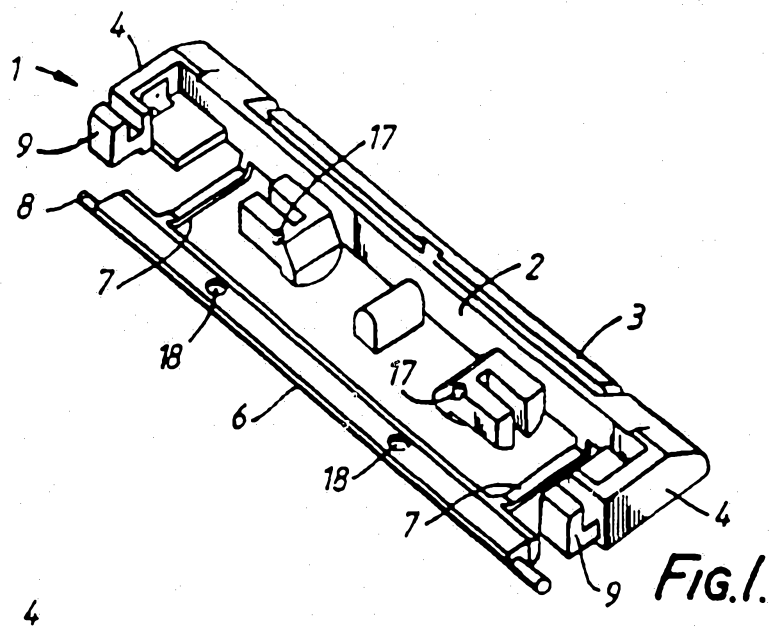


FIG. 1.

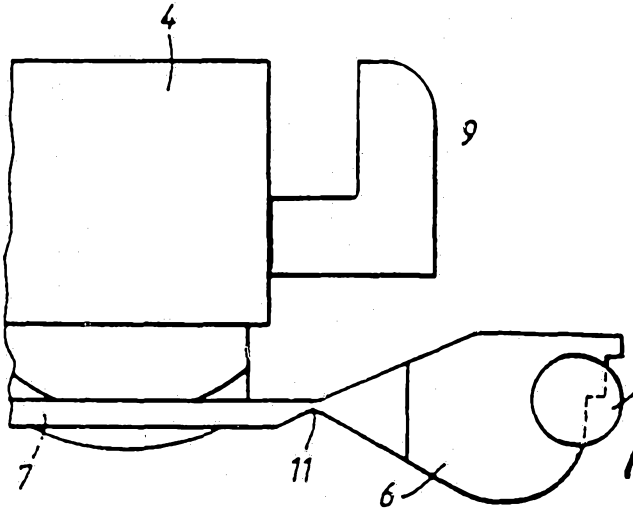


FIG. 2.

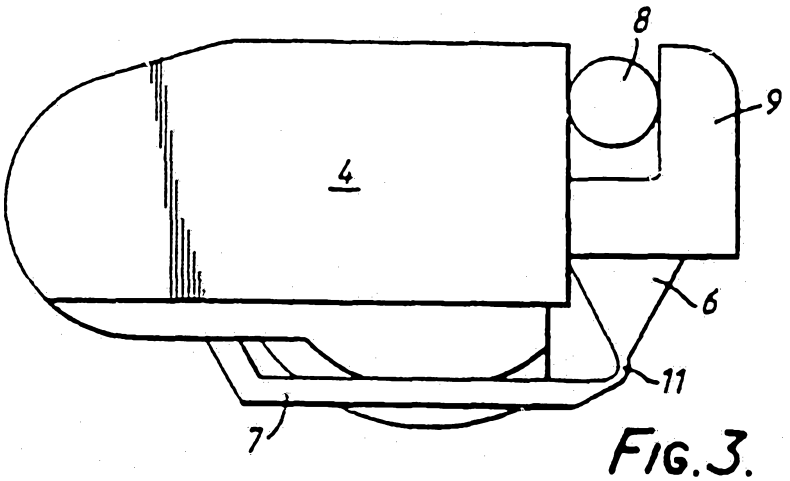


FIG. 3.

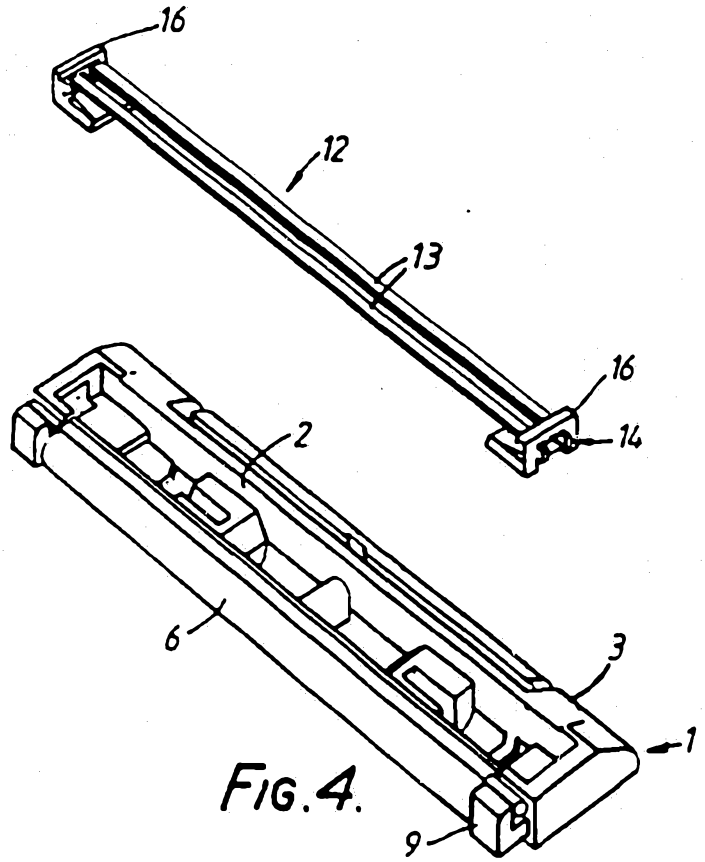


FIG. 4.

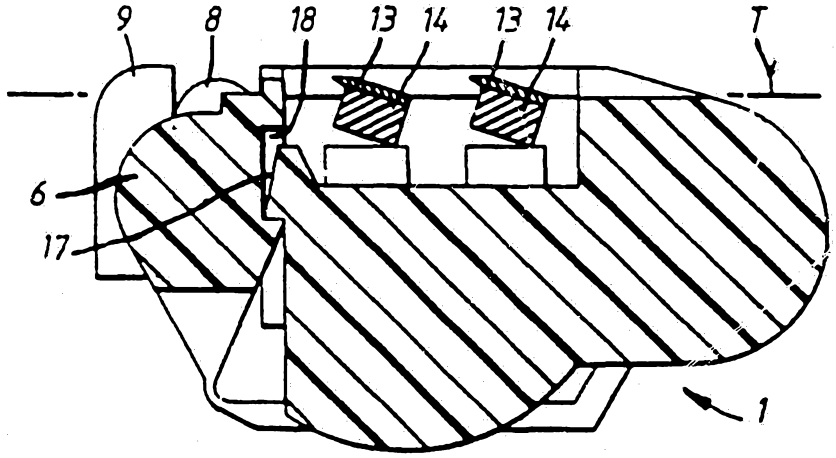


FIG. 5.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US88/01343

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [6]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC (4): B26B 21/22
U.S. Cl. 30/77

II FIELDS SEARCHED

Minimum Documentation Searched [7]

Classification System	Classification Symbols
U.S.	30/32,47,57,77,83

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category *	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No. [13]
Y	U S , A, 3,909,941 (Bowman et. al.) Published 07 October 1975, column 2, lines 26-36, and Figures 1 and 2.	1-3
Y	U S , A, 4,063,354 (Oldroyd et. al.) Published 20 December 1977, column 2, lines 58-68, column 3, lines 26-39, column 4, lines 14-29, and Figures 1-4, 13-16, and 20-22.	1-3
A	U S , A, 3,909,942 (Ciaffone) Published 07 October 1975.	
A	U S , A, 4,501,067 (Duncan) Published 26 February 1985.	
A	U S , A, 4,586,255 (Jacobson) Published 06 May 1986.	

* Special categories of cited documents: [10]

"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

"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.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
10 JUNE 1988	27 JUN 1988
International Searching Authority	**Signature of Authorized Officer**
ISA/US	M. FOLKERTS