

①



Europäisches Patentamt
European Patent Office
Office européen des brevets

①

Publication number:

0 020 815
A1

②

EUROPEAN PATENT APPLICATION

②

Application number: **79105155.0**

⑤

Int. Cl.³: **B 26 B 21/52**

②

Date of filing: **13.12.79**

③

Priority: **19.06.79 US 49922**
19.06.79 US 49923

⑦

Applicant: **The Gillette Company, Prudential Tower Building, Boston, Massachusetts 02199 (US)**

④

Date of publication of application: **07.01.81**
Bulletin 81/1

⑦

Inventor: **Jacobson, Chester F., 10 Pinecone Lane, Southboro Massachusetts (US)**

⑧

Designated Contracting States: **DE GB NL**

⑦

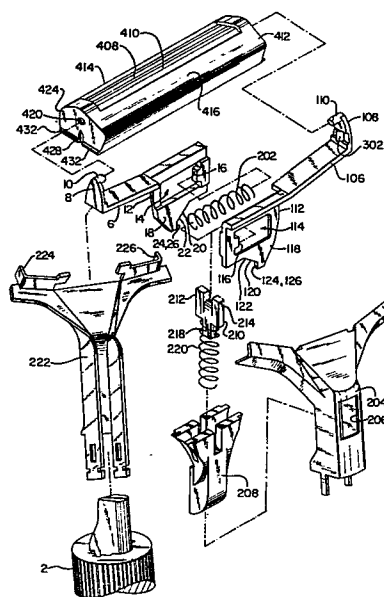
Representative: **Baillie, Iain Cameron et al, c/o Ladas, Parry, von Gehr, Goldsmith & Deschamps Blumenstrasse 48, D-8000 München 2 (DE)**

⑤

A razor handle.

⑤

A razor handle for a razor blade assembly adapted to be movably mounted on the handle, the razor handle having opposed and aligned journals (10, 110) disposed on arm portions (6, 106), the arm portions (6, 106) being movable toward and away from each other reciprocally and axially of the journals (10, 110) to permit the journals to engage and disengage the razor blade assembly (402, 412, 424, 426).



EP 0 020 815 A1

A RAZOR HANDLE

This invention relates to razors for wet shaving, and is directed more particularly to a razor for use with a blade assembly which is movable during a shaving
5 operation.

Razors having facility for mounting blade assemblies thereon to permit movement of the blade assembly during a shaving operation are known in the art. U.S. Patents 4,083,104 and 4,026,016 disclose such razors.
10 The razors shown and described in those U.S. Patents have opposed and aligned journal means disposed on arm portions. The journal means are adapted to interfit with journal bearings on the blade assembly, to provide a pivotal mounting. To release the blade assembly, the arms are
15 pivotally moved outwardly from each other to release the shaving assembly. The pivotal movement of the arms, in

practice, is rapid and causes an outward movement of the blade assembly, away from the razor. Generally, such outward propulsion of the blade assembly is deemed undesirable. It is preferable that, upon release, the blade
5 assembly be simply released, rather than be thrust away from the razor.

It is, therefore, an object of the invention to provide a razor handle for a movably mounted blade assembly, the handle being adapted to release the blade
10 assembly without ejecting the blade assembly from the razor handle.

According to the present invention there is provided a razor handle having spaced first and second arms, and first and second journal pivotal mountings pro-
15 vided respectively on said first and second arms to engage and retain a razor blade unit therebetween and permit movement of said blade unit about an axis defined by said journal pivotal mountings, characterized in that the first and second arms are movable toward and
20 away from each other axially of said journal pivotal mountings to engage and disengage a razor blade unit.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly de-
25 scribed with reference to the accompanying drawings. It will be understood that the particular device embodying the invention is shown by way of illustration only and not as a limitation of the invention. The principles

and features of this invention may be employed in various and numerous embodiments without departing from the scope of the invention.

Reference is made to the accompanying drawings in which is shown an illustrative embodiment of the invention from which its novel features and advantages will be apparent.

In the drawings:

Fig. 1 is a perspective view of one form of razor blade assembly illustrative of an embodiment of the invention, shown in a perspective exploded view of a razor handle adapted for use in conjunction with the blade assembly;

Fig. 2 is a rear elevational view, partly broken away, the blade assembly shown mounted on the razor handle;

Fig. 3 is similar to Fig. 2, but showing the blade assembly released from the handle;

Fig. 4 is a sectional view of the handle and blade assembly taken along line IV-IV of Fig. 2;

Fig. 5 is a sectional view of the handle taken along line V-V of Fig. 3; and

Fig. 6 is a top plan view partly broken away, of the illustrative blade assembly.

Referring to the drawings, it will be seen that the razor includes a grip portion 2 and a head portion 4. The head portion 4 includes a first arm 6 having an upstanding end portion 8. A first journal 10 is fixed to the first arm end portion 8. Affixed to the first arm 6 is a first frame member 12 having an opening 14 therein. A first protrusion 16 extends inwardly of the opening 14 from a side of the first frame member 12. Extending downwardly from a bottom portion of the first frame member 12, as viewed in the drawings, is a first extension 18 having an inclined edge 20 forming a first cam surface 22, and an edge surface 24 defining a first channel wall 26, which will be further described below.

The head portion 4 further includes a second arm 106 having an upstanding end portion 108. A second journal 110 is fixed to the second arm end portion 108. Affixed to

the second arm 106 is a second frame member 112 having an opening 114 therein, the opening 114 being generally in alignment with the first opening 14. A second protrusion 116 extends inwardly of the opening 114 from a side of the second frame member 112, the second protrusion 116 being generally opposed to the first protrusion 16. Extending downwardly from a bottom portion of the second frame member 112, as viewed in the drawings, is a second extension 118 having an inclined edge 120 forming a second cam surface 122, and an edge surface 124 defining a second channel wall 126, the first and second channel walls 26, 126 defining a channel 200 therebetween, the channel 200 leading to an intersection of the opposed first and second cam surfaces 22, 122.

15 A coil spring 202 is disposed in the openings 14, 114, fitted over the protrusions 16, 116. The spring 202 operates to urge the frame members 12, 112 to stay in substantial alignment with each other and biases the frame members 12, 112 toward the position shown in Fig. 2.

20 The head portion 4 includes a first housing member 204 having an opening 206 therein. Extending through the opening 206 is a push button 208 in which is mounted a bifurcated actuator 210 having upstanding lugs 212, 214 defining a recess 216 therebetween. The actuator 210 includes a stem portion 218 about which there is disposed a coil spring 220. The actuator 210 engages the opposed first and second cam surfaces 22, 122 by way of the channel 200, the lug 212 being on one side of the extensions 18, 118 and the lug 214 being on the other. The coil spring 220 maintains the actuator 210 in engagement with the cam surfaces 22, 122.

35 The head portion 4 further includes a second housing member 222, which along with the first housing member 204, enclose the above described mechanism. The second housing member 222 includes a pair of upstanding detents 224, 226 which are disposed proximate to the arm end portions 8, 108, respectively. The upstanding detents 224, 226

are operative to prevent accidental endwise movement of the shaving unit which might cause separation of the journals and inadvertant release of the shaving unit. This is apparent from Figure 2 of the drawings which clearly shows
5 the upstanding detent 226 in a position to abut a wall 426 of the shaving unit and prevent further leftwards movement of said shaving unit.

In operation, the journals 10, 110 must be moved outwardly from each other to accept a shaving unit there-
10 between. The shaving unit (described hereinbelow) is provided with journal bearings which accept the journals 10, 110 for pivotally mounting the shaving unit on the razor. To separate the journals 10, 110 an operator depresses the push button 208, urging the actuator forcefully against the
15 cam surfaces 22, 122, causing the frame members 12, 112 to slide in opposite directions along the axis of the coil spring 202, compressing the spring 202. The arm end portions are then positioned to bring the journals 10, 110 into register with the aforementioned journal bearings. Upon
20 release of the button 208, the coil spring 202 causes the frame members 12, 112 to snap back into alignment and the opposed journals 10, 110 to move along their axes toward one another to engage the shaving unit.

To release the shaving unit, the operation is
25 repeated, the journals 10, 110 being thereby caused to move outwardly along their aligned axes to separate from the shaving unit and thereby release the shaving unit from the razor.

Referring again to the drawings, it will be seen that the first and second arm portions 6, 106 are each provided with cam means 300, 302 thereon, the cam means being
30 engageable with complementary cam means on the blade assembly (further described below). The cam means 300, 302 cooperate with the blade assembly cam means to urge the pivotally mounted blade assembly toward a neutral position.
35 In the illustrative example, the cam means 300, 302 each comprise an inwardly-extending protrusion on the upstanding end portion 8, 108 of either arm 6, 106. Each cam includes

a pair of cam surfaces 304, 306 (Fig. 5) intersecting at an apex 308.

Referring particularly to Fig. 4, it will be seen that the illustrative blade assembly includes a frame portion 402 including blade support portions 404, 406 to which are attached blade means 408, 410. The frame portion 402 is retained in a housing 412 having a guard portion 414 and a cap portion 416, the blade means 408, 410 being disposed in an opening 418 therebetween.

The blade assembly includes a pair of pivot mounting means preferably journal bearings 420, 422 (Figs. 2 and 3). In the illustrated embodiment, the journal bearings 420, 422 are disposed in end walls 424, 426, respectively, of the housing 412. On each of the end walls, 424, 426, proximate the pertinent journal bearings, there is disposed a recess 428. Referring particularly to Figs. 1 and 6, it will be seen that the recess 428 broadens outwardly from its inwardmost point 430, as viewed in Fig. 6. Each end wall 424, 426 of the housing is provided with a ridge 432. The recess 428 extends through the ridge 432. The edges of the recess 428 converge as the recess extends downwardly from the ridge to the base 434 of the housing end wall 424, 426. Referring to Fig. 6, it will be seen that the recess 428 comprises a cam means and is deepest in the area of the ridge 432 and tapers toward the outer surface of the end wall 424, 426. The taper of the recess toward the crest 436 of the ridge 432 defines cam surfaces 440, 442 adapted to receive the above-described cam members 300, 302 disposed on the first and second arm portions of the razor to which the blade assembly is connected. The pivot mounting means 420, 422 are adapted to accept complementary pivot mounting means on the handle, preferably the journal members 10, 110 disposed on the aforementioned first and second razor arm portions, thereby to facilitate pivotal movement of the blade assembly on the razor during a shaving operation.

The blade assembly preferably comprises a molded plastic or a formed metal and the blade assembly pivot

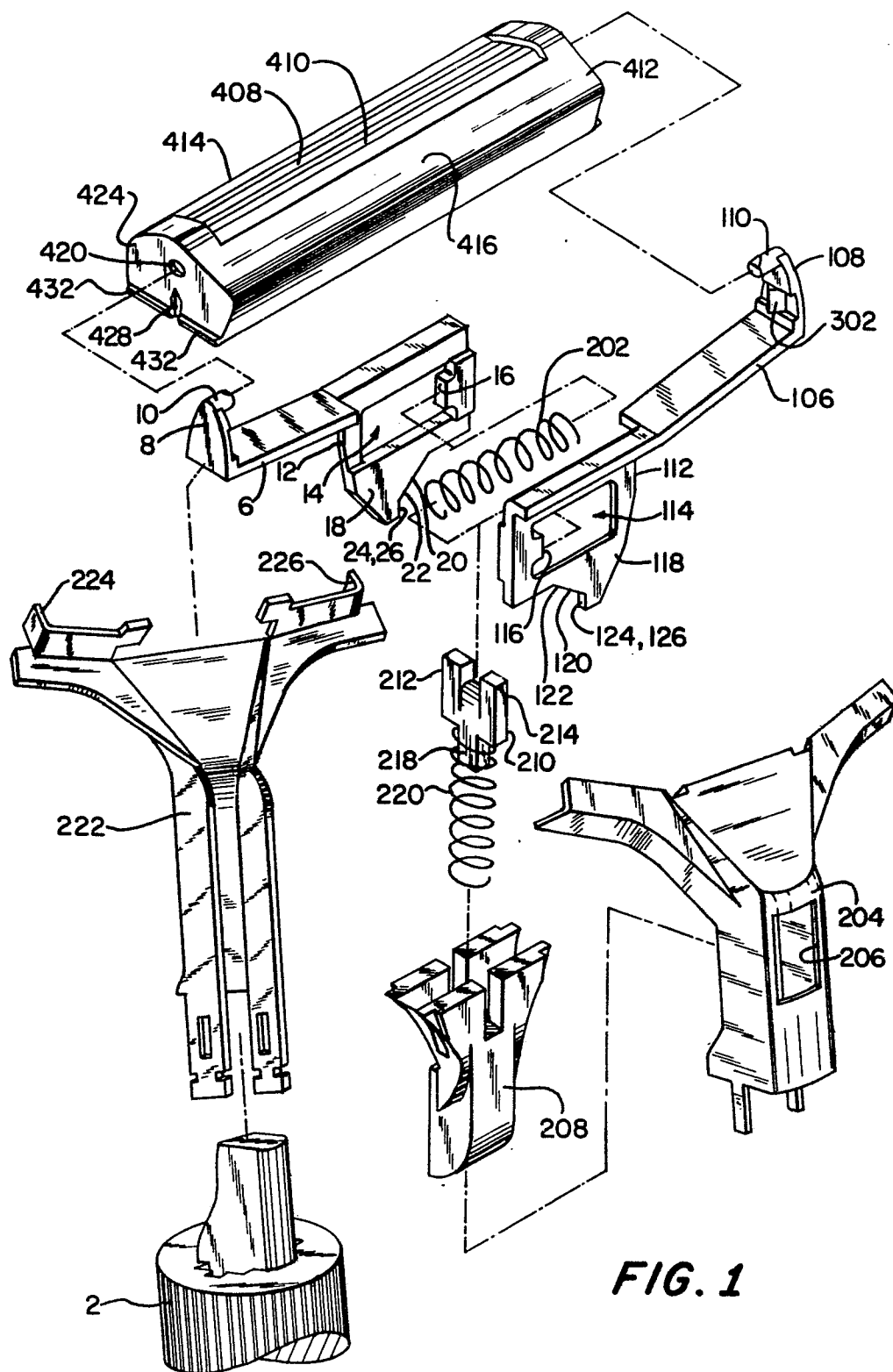
mounting means 420, 422 and the blade assembly cam means 428 are integrally molded or formed portions of the blade assembly.

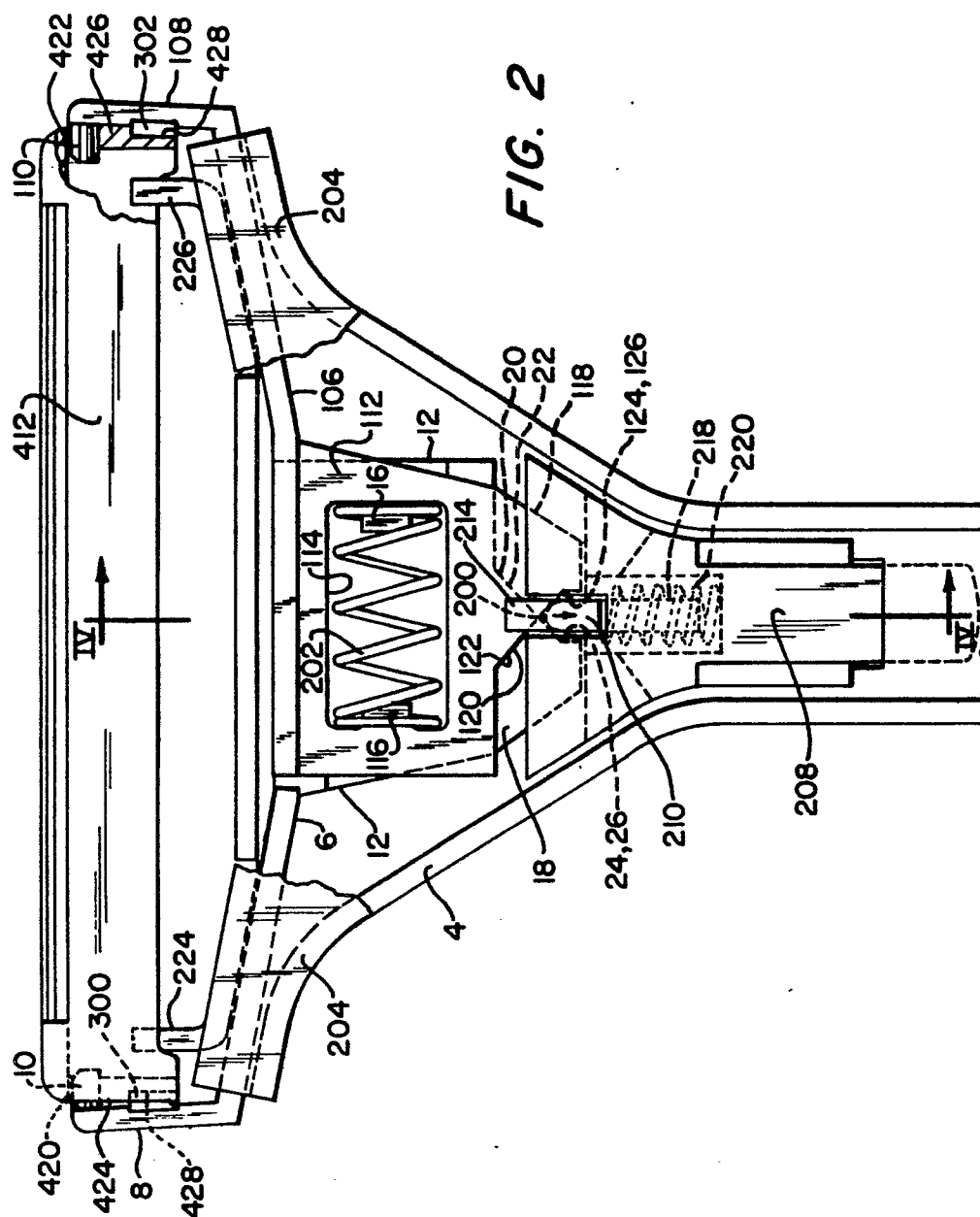
In connection of the blade assembly to a razor,
5 the journal bearings 420, 422 receive the journals 10, 110 on the razor and the generally V-shaped recesses 428 receive the cam members 300, 302 on the razor. Each cam member engages the deepest portion of its respective recess. During a shaving operation, pivotal movement of the blade
10 assembly about an axis extending through the bearings 420, 422 causes movement of the recess, such as to bring one or the other of the cam surfaces 440, 442 to bear against the complemental surfaces of the cam members. The cam members seek the deepest portion of the recesses and thereby urge
15 the return of the blade unit to its "neutral" position.

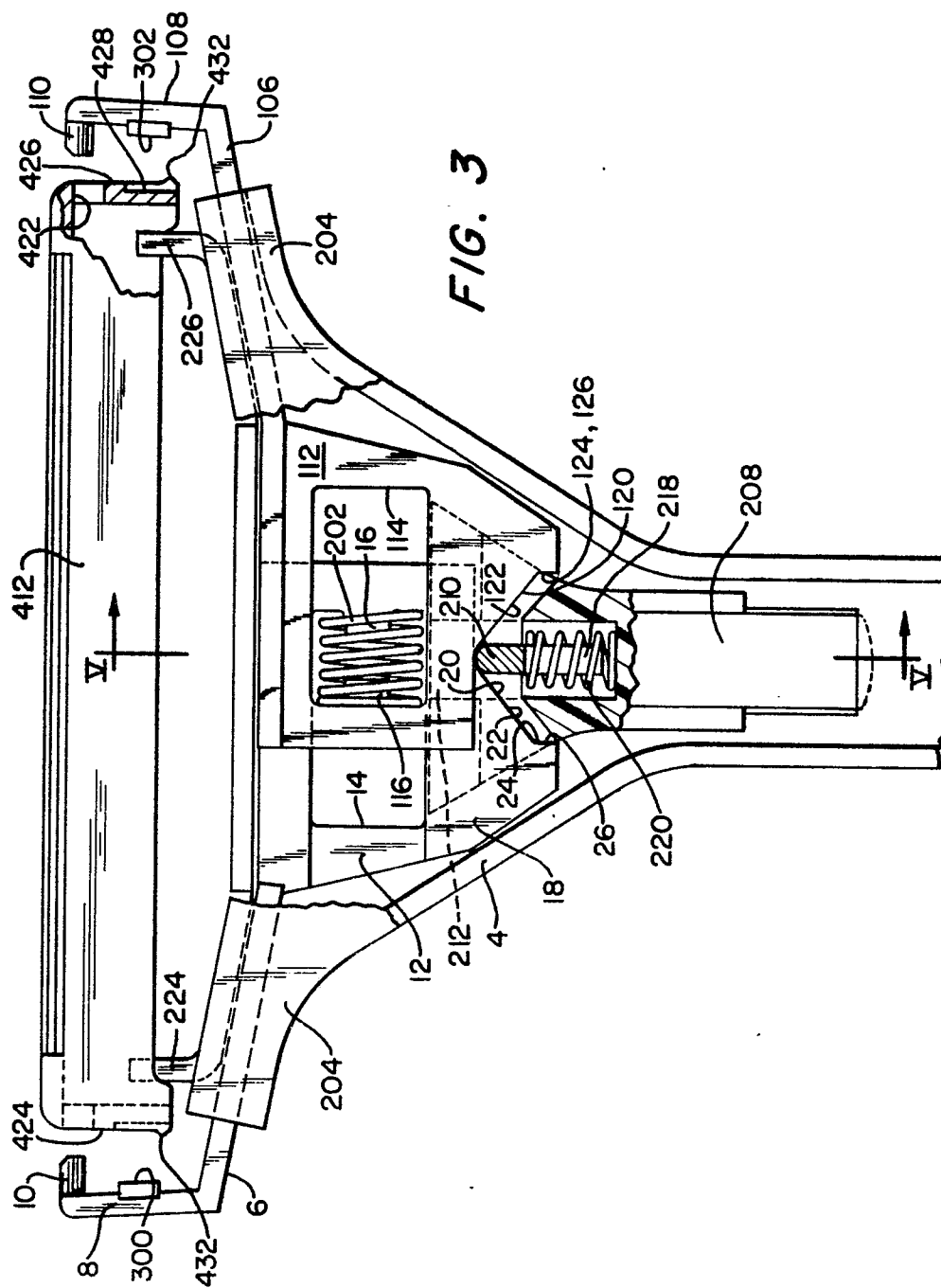
C L A I M S

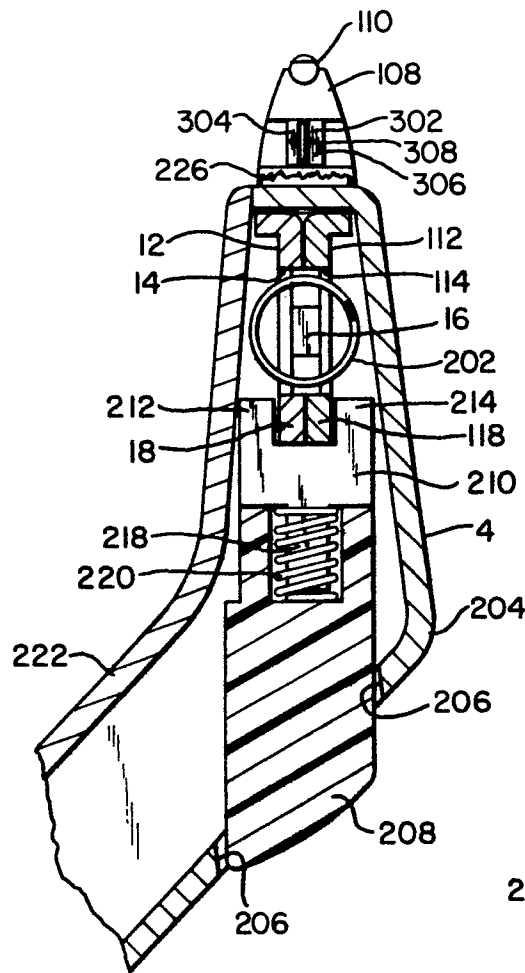
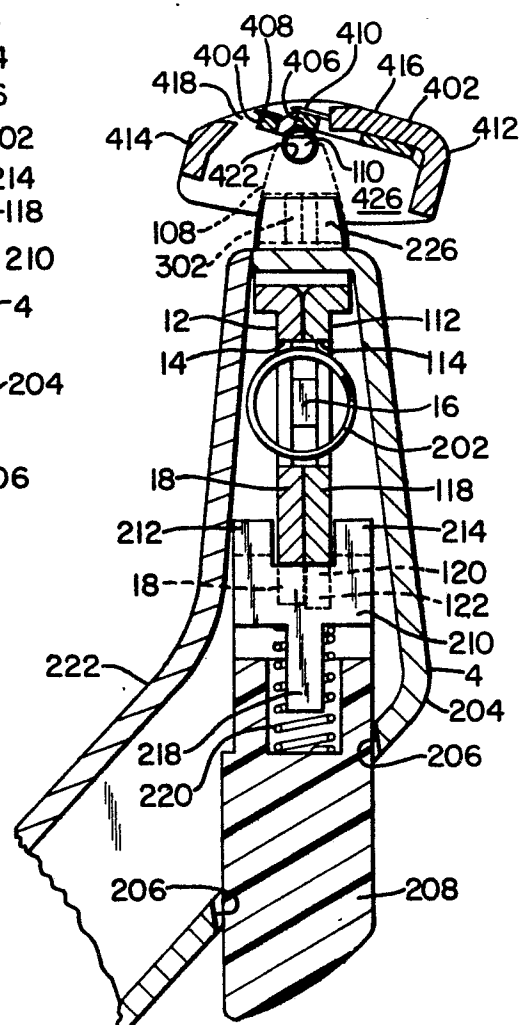
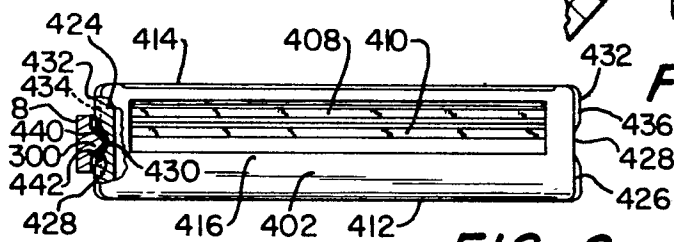
1. A razor handle having spaced first and second arms, and first and second journal pivotal mountings provided respectively on said first and second arms to engage and retain a razor blade unit therebetween and permit movement of said blade unit about an axis defined by said journal pivotal mountings, characterized in that the first and second arms (6, 106) are movable toward and away from each other axially of said journal pivotal mountings to engage and disengage a razor blade unit.
2. A razor handle according to claim 1, characterized in that a first frame (12) depends from the first arm (6) and a second frame (112) depends from the second arm (106), said first and second frames being respectively slidable with said first and second arms.
3. A razor handle according to claim 2, characterized in that a spring (202) urges the arms (6, 106) toward each other into the blade unit engaging and retaining position.
4. A razor handle according to claim 3, characterized in that an opening (14) in the frame (12) and a registering opening (114) in the frame (112) provide a seating for the spring (202).
5. A razor handle according to claim 4, characterized in that a first projection (16) on the first frame (12) and a second projection (116) on the second frame (112) project inwardly into the opening (14, 114) from opposite sides thereof and in that the spring is a coil spring (202) having opposite ends seated on the projections (16, 116).
6. A razor handle according to any of claims 3 to 5, characterized in that cam surfaces (22, 122) are provided on the frames (12, 112) and in that an actuator (210) is arranged to cooperate with said cam surfaces to urge the frames to slide against the bias of the spring (202) to move the arms (6, 106) away from each other.
7. A razor handle according to claim 6, characterized in that the actuator (210) is displaceable by a manually operable push button (208).

8. A razor handle according to any of claims 1 to 7, characterized in that abutment members (224, 226) upstand from the razor handle to limit lengthwise movement of a razor blade unit mounted on the journal pivotal mountings (10, 110).







**FIG. 5****FIG. 4****FIG. 6**



European Patent
Office

EUROPEAN SEARCH REPORT

0020815

EP 79 10 5155

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
D	<u>US - A - 4 083 104</u> (NISSEN) * Column 2, line 31 till column 3, line 62; figures 1-5, 7 *	1,6,7	B 26 B 21/52
	--		
AP	<u>GB - A - 1 557 843</u> (GILLETTE) * Pages 1,2; figures 1,3 *	1	

			TECHNICAL FIELDS SEARCHED (Int.Cl. 3)
			B 26 B
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
☒ The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	23-09-1980	WOHLRAPP	