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Office européen des brevets



(11) Publication number:

0 452 281 B1

(12)

EUROPEAN PATENT SPECIFICATION

(49) Date of publication of patent specification: **07.06.95** (51) Int. Cl.⁶: **B43K 7/12**

(21) Application number: **91830136.7**

(22) Date of filing: **09.04.91**

(54) **A ballpoint pen with a retractable writing tip.**

(30) Priority: **13.04.90 IT 5297090 U**

(43) Date of publication of application:
16.10.91 Bulletin 91/42

(45) Publication of the grant of the patent:
07.06.95 Bulletin 95/23

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

(56) References cited:
FR-A- 934 235
FR-A- 1 133 917
GB-A- 1 264 963
US-A- 3 326 189

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Description

The present invention relates to a ballpoint pen with a retractable writing tip, including the features indicated in the pre-characterising portion of Claim 1.

GB-A-1 264 963 discloses a ballpoint pen having the above-mentioned features.

The object of the present invention is to provide a ballpoint pen of the type indicated above whose components can be assembled quickly by automated systems and hence at low cost.

The subject of the present invention is a ballpoint pen of the type indicated above and further comprising the features indicated in the characterising portion of claim 1.

The pen according to the present invention has the advantage that it is constituted by a small number of parts which can be assembled quickly. In particular, the top portion which forms part of the cap can be fitted onto the other components of the pen simply by its insertion in the sleeve of the cap and in the barrel under pressure, as will be described in greater detail below. This operation can thus easily be automated.

In a preferred embodiment of the present invention, the ballpoint pen includes a clip constituted by an annular element from which a longitudinal element extends outside the sleeve of the cap and the barrel and is characterised in that the annular element is clamped between the head of the top portion and the facing end of the sleeve.

There is thus the further advantage that no further auxiliary elements are needed to fit the clip to the barrel of the pen and this can also be carried out by automated systems.

Further advantages and characteristics of the present invention will become clear from the detailed description which follows with reference to the appended drawing, provided by way of non-limiting example, in which:

Figure 1 is an elevational view of a ballpoint pen according to the invention, and

Figure 2 is a section taken on the line II-II of Figure 1, on an enlarged scale.

With reference to the drawings, a ballpoint pen with a retractable writing tip 2 includes a hollow, substantially cylindrical barrel 4 and a cap 6 mounted coaxially on the end of the barrel 4 opposite that associated with the writing tip 2 and slidable relative thereto. A helical spring 8 is interposed between the barrel 4 and the cap 6.

The cap 6 is constituted by a sleeve 10 and a top portion 12 having a head 14 with a projecting central pin 16 which fits in the sleeve 10. The pin 16 has a first portion 16a of larger cross-section, in which an annular groove 20 is formed, and a second portion 16b of smaller cross-section which is

joined to the first portion 16a by a flared intermediate portion 16c.

The sleeve 10 and the top portion 12 are fixed together by engagement means comprising the groove 20 in the pin 16 and an annular projection 18 of corresponding shape to the shape of the groove 20 on the inner surface of the sleeve 10. The side 18a of the projection 18 which faces the head 14 of the top portion 12 is inclined to the axis of the pen at an angle substantially similar to that of the intermediate portion 16c of the pin 16 so as to facilitate the fitting of the top portion 12 in the sleeve 10, as will be described in greater detail below.

The free end 22 of the pin 16 is tapered and has an annular projection 24 which is intended to abut a corresponding surface 21 of the barrel 4 so as to restrain the free end 22 in the barrel 4. The free end 22 also acts as the actuator of the snap-mechanism of the pen, schematically indicated 25, which is of known type and is not described further.

The pen also includes a clip 26 constituted by an annular element 28 from which a longitudinal element 30 extends outside the sleeve 10 of the cap 6 and the barrel 4. The annular element 28 is clamped between the head 14 of the top portion 12 and the facing end of the sleeve 10.

In order to assemble the components of the ballpoint pen, it suffices to insert the pin 16 of the top portion 12 in the annular element 28 of the clip 26, the sleeve 10 and the barrel 4 which are arranged coaxially, making use of the peripheral resilient deformability of the barrel 4 and the sleeve 10. The free end 22 of the pin 16 actually enters the barrel 4 easily by virtue of its taper and is clamped therein by the projection 24 which abuts the stop surface 21. The engagement of the projection 18 of the sleeve 10 in the groove 20 in the pin 16 of the top portion 12, however, interconnects these two elements, clamping the annular element 28 of the clip 26 between them. The insertion of the pin 16 in the sleeve 10 is facilitated by the flared side of the portion 16c of the pin 16 which can thus slide against the side 18a of the projection 18 which has a substantially similar inclination.

In order to operate the snap-mechanism 25, it suffices to press the head 14 of the top portion 12 which is lowered with the clip 26 and the sleeve 10, thus actuating the mechanism 25 by means of the free end 22 of the pin 16. The spring 8 returns the cap 6 to its original position as soon as the pressure is released from the head 14 of the top portion 12.

Claims

1. A ballpoint pen with a retractable writing tip (2) including:

a hollow, substantially cylindrical barrel (4), 5
 a snap mechanism (25) located in the barrel (4) for causing the writing tip (2) to project from the barrel (4) or be retracted therein, 10
 a cap (6) mounted coaxially on the end of the barrel (4) opposite that associated with the writing tip (2) and slidable relative thereto, which comprises a sleeve (10) and a top portion (12) having a head (14) with a projecting central pin (16) which fits in the sleeve (10), the sleeve (10) and the pin (16) being fixed 15
 together by engagement means comprising an annular groove (20) in the surface of the pin (16) and an annular projection (18) of corresponding shape to the shape of the groove (20) in the internal surface of the sleeve (10), the free end (22) of the pin (16) having an annular projection (24) which is intended to abut a corresponding surface (21) of the barrel (4) so as to restrain the free end (22) in the barrel (4) and acting as an actuator for the snap-mechanism (25), and 25
 said ballpoint pen being characterised in that the pin (16) has a first portion (16a) of larger cross-section, in which the groove (20) is formed, and a second portion (16b) of smaller cross-section which is joined to the first portion (16a) by a flared intermediate portion (16c), and in that the side (18a) of the projection (18) of the sleeve (10) facing the head (14) of the top portion (12) is inclined in substantially the same manner as the intermediate portion (16c) of the pin (16). 30 35

2. A ballpoint pen according to Claim 1, including a clip (26) constituted by an annular element (28) from which a longitudinal element (30) extends outside the sleeve (10) of the cap (6) and the barrel (4), characterised in that the annular element (28) is clamped between the head (14) of the top portion (12) and the facing end of the sleeve (10). 40 45
3. A ballpoint pen according to anyone of the preceding claims, characterised in that the free end of the pin (16) is tapered to facilitate its insertion in the barrel (4). 50

Patentansprüche

1. Kugelschreiber mit einer einziehbaren Schreibspitze (2), umfassend: ein hohles, im wesentlichen zylindrisches Rohrteil (4), einen Schnapp-Mechanismus (25), welcher in dem Rohrteil (4) 55

angeordnet ist, um zu veranlassen, daß die Schreibspitze (2) aus dem Rohrteil (4) heraustritt oder in dieses eingezogen wird, einen Aufsatz (6), der auf dem Ende des Rohrteils (4) koaxial angebracht ist, das jenem der Schreibspitze (2) zugeordneten entgegengesetzt ist, relativ zu diesem verschiebbar ist und eine Hülse (10) und einen oberen Abschnitt (12) umfaßt, wobei der obere Abschnitt (12) einen in die Hülse (10) passenden, abstehenden zentralen Stift (16) aufweist; wobei die Hülse (10) und der Stift (16) aneinander durch Eingriffsmittel befestigt sind, welche eine ringförmige Ausnehmung (20) in der Fläche des Stifts (16) und einen der Gestalt der Ausnehmung (20) entsprechend geformten Vorsprung (18) in der inneren Fläche der Hülse (10) umfassen, wobei das freie Ende (22) des Stifts (16) einen ringförmigen Vorsprung (24) aufweist, welcher zur Anlage an eine entsprechende Fläche (21) des Rohrteils (4) bestimmt ist, um das freie Ende (22) im Rohrteil (4) zurückzuhalten und als ein Stellglied für den Schnapp-Mechanismus (25) zu wirken, und wobei der Kugelschreiber dadurch gekennzeichnet

ist, daß der Stift (16) einen ersten Abschnitt (16a) größeren Querschnitts, in welchem die Ausnehmung (20) gebildet ist, und einen zweiten Abschnitt (16b) kleineren Querschnitts, welcher mit dem ersten Abschnitt (16a) durch einen sich nach außen erweiternden Zwischenabschnitt (16c) verbunden ist umfaßt, und daß die Seite (18a) des Vorsprungs (18) der Hülse (10), die dem Kopf (14) des oberen Abschnitts (12) zugewandt ist, in im wesentlichen der gleichen Art geneigt ist wie der Zwischenabschnitt (16c) des Stifts (16).

2. Kugelschreiber nach Anspruch 1, umfassend: eine Haltevorrichtung (26), die von einem ringförmigen Element (28), von welchem sich ein Längselement (30) zur Außenseite der Hülse (10) des Aufsatzes (6) und des Rohrteils (4) erstreckt, gebildet ist, dadurch gekennzeichnet, daß das ringförmige Element (28) zwischen dem Kopf (14) des oberen Abschnitts (12) und dem ihm zugewandten Ende der Hülse (10) festgelegt ist.
3. Kugelschreiber nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das freie Ende des Stifts (16) verjüngt ist, um sein Einführen in das Rohrteil (4) zu erleichtern.

Revendications

1. Stylo à bille à pointe (2) rétractable comprenant :
 - un corps (4) creux, sensiblement cylindrique, 5
 - un mécanisme d'enclenchement (25) situé dans le corps (4) et destiné à faire dépasser la points (2) du corps (4) ou la faire se rétracter à l'intérieur, 10
 - un capuchon (6) monté coaxialement sur l'extrémité du corps (4), à l'opposé de celui qui est associé à la pointe (2) et de façon coulissante par rapport à celui-ci, qui comprend un manchon (10) et une partie supérieure (12) possédant une tête (14) pourvue d'une broche centrale (16) dépassante qui s'engage dans le manchon (10), le manchon (10) et la broche (16) étant fixés ensemble par des moyens de contact comprenant une rainure annulaire (20) ménagée dans la surface de la broche (16) et une saillie annulaire (18) de forme correspondante à la forme de la rainure (20) présente dans la surface intérieure du manchon (10), l'extrémité libre (22) de la broche (16) présentant une saillie annulaire (24) qui est destinée à venir en butée contre une surface correspondante (21) du corps (4) afin de retenir l'extrémité libre (22) dans le corps (4) et qui sert d'actionneur pour la mécanisme d'enclenchement (25), et 20
 - le stylo à bille étant caractérisé en ce que la broche (16) possède une première partie (16a) de section transversale plus grande, dans laquelle la rainure (20) est formée, et une deuxième partie (16b) de section transversale plus petite, qui est assemblée à la première partie (16a) par une partie intermédiaire (16c) évasée, et en ce que le côté (18a) de la saillie (18) du manchon (10), qui est en face de la tête (14) de la partie supérieure (12), est incliné de façon sensiblement similaire à la partie intermédiaire (16c) de la broche (16). 25
2. Stylo à bille selon la revendication 1, comprenant une agrafe (26) constituée par un élément annulaire (28) à partir duquel un élément longitudinal (30) s'étend, à l'extérieur du manchon (10), du capuchon (6) et du corps (4), caractérisé en ce que l'élément annulaire (28) est coincé entre la tête (14) de la partie supérieure (12) et l'extrémité, située en regard, du manchon (10). 30
3. Stylo à bille selon l'une quelconque des revendications précédentes, caractérisé en ce que l'extrémité libre de la broche (16) est conique, afin de faciliter son insertion dans le corps (4). 35

FIG. 2

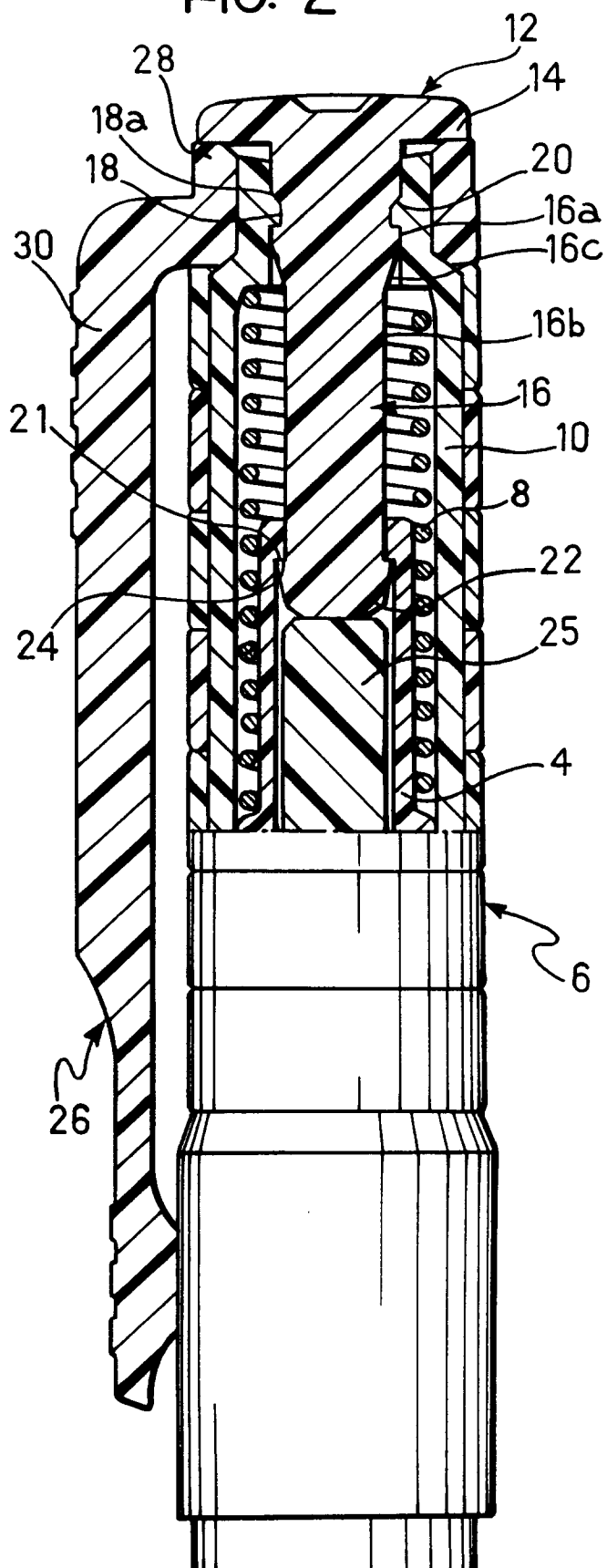


FIG. 1

