Sept. 14, 1965 B. H. LAMMERS 3,205,865

WRITING INSTRUMENT WITH RETRACTABLE AND YIELDABLE POINT

Filed May 13, 1963

Fig. 1.

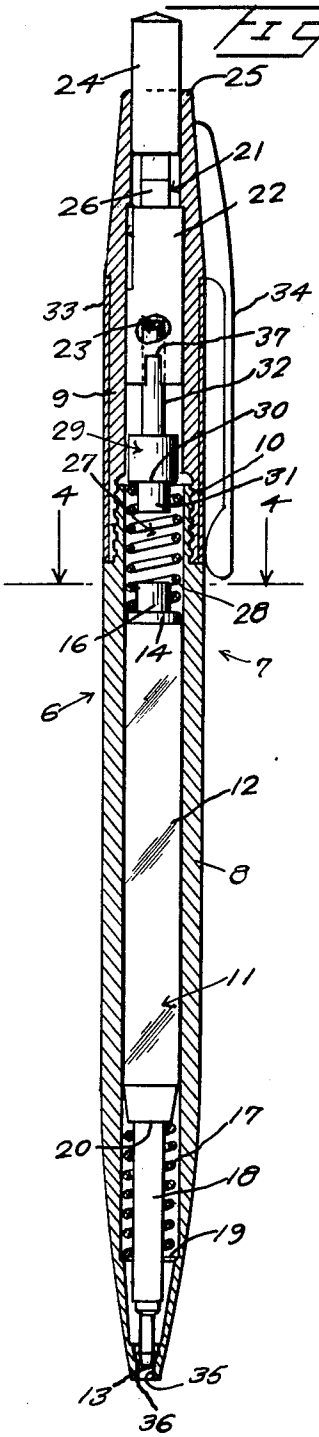



Fig. 2.

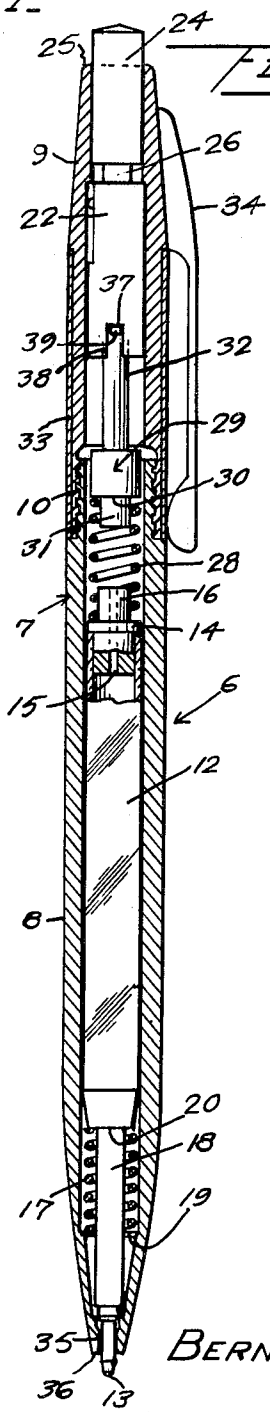
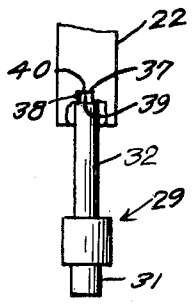



Fig. 3.



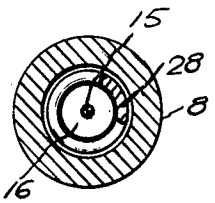




Fig. 4.

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# WRITING INSTRUMENT WITH RETRACTABLE AND YIELDABLE POINT

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1 Claim. (Cl. 120—42.03)

This invention relates to a ball point-type writing instrument wherein the ball point is held in a retracted sheathed position when not in use and is yieldably supported in a projected position for use, whereby the ball point or scribing element will float or glide over a piece of paper with which it is in writing contact.

A primary object of the present invention is to provide an improved ball point-type writing instrument wherein a substantially uniform pressure will be maintained constantly on the ball point while it is in writing contact with a piece of paper, so that a more uniform amount of ink will be dispensed from the writing ball to eliminate the "fading" as frequently results where too much pressure is applied in writing with a ball point pen.

A further object of the invention is to provide a pen which will write more smoothly due to the tendency of the point to glide over the paper resulting from the ability of the point to yield relative to the barrel in which it is supported, so that a floating action will result which will enable the pen to be operated with less effort.

Still a further object of the invention is to provide a pen which will use less ink while insuring a uniform dispensing of the ink, thereby resulting in less frequent replacement of the ink reservoir or cartridge, than with conventional retractable ball point pens wherein the point is rigidly held in a projected, writing position.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

FIGURE 1 is a longitudinal sectional view, partly in elevation and partly broken away, illustrating the improved writing instrument with the writing point thereof in a retracted position;

FIGURE 2 is a view similar to FIGURE 1 but showing the writing point yieldably held in a projected position;

FIGURE 3 is a fragmentary detailed view, partly in elevation, partly broken away and partly in section, of a portion of the writing instrument, and

FIGURE 4 is an enlarged cross sectional view taken substantially along a plane as indicated by the line 4—4 of FIGURE 1.

Referring more specifically to the drawing, the writing instrument in its entirety is designated generally **6** and includes a barrel **7** composed of a forward section **8** and a rear section **9**, which sections are threadedly connected at their adjacent ends in a conventional manner, as seen at **10**.

A conventional writing unit, designated generally **11**, is slidably mounted in the barrel **7** and includes a cartridge or reservoir **12** constituting the rear portion of the unit **11** and a ball point **13** constituting the forward end of said writing unit **11**. A plug **14** is mounted in the rear end of the cartridge **12** and has a vent port **15** extending longitudinally therethrough and through a restricted stem portion **16** thereof which projects rearwardly from the cartridge **12**.

A coil spring **17** is disposed in the forward barrel section **8** around a tubular forward portion **18** of the writing unit **11** and has a forward end which seats against a rearwardly facing annular shoulder **19** of the hollow interior of the barrel section **8**, and a rear end which abuts an annular forwardly facing shoulder **20** which surrounds the rear end of the tubular portion **18**.

A conventional latch unit, designated generally **21**, is



mounted in the rear barrel section **9** and includes a sleeve **22** containing a latch member **23** which is mounted for reciprocating and oscillating movement in said sleeve, and a plunger **24** which projects outwardly from the rear end **25** of the barrel section **9** and which has a restricted forwardly extending neck **26** which extends into the sleeve **22**. The latch unit **21** is of a conventional construction and is fully disclosed in U.S. Patent No. 3,007,444, issued November 7, 1961, and as said latch mechanism constitutes no part of the present invention, it has not been fully illustrated in the drawing and will not be described in detail.

A thrust transmitting means, designated generally **27**, includes a coil spring **28** and a rigid element **29**. Said thrust transmitting means is interposed between the rear end of the writing unit **11** and the latch element **23**. The forward end of the spring **28** abuts against the plug **14** and engages around the stem **16**, and the rear end of the spring **28** abuts against the forwardly facing annular shoulder **30** of the element **29** and engages around a restricted forward end **31** of said element **29**. The element **29** has a restricted rear end or stem **32** which extends into the forward end of the sleeve **22** and abuts against the forward end of the latch element **23**. The rear end of the spring **28** may fit loosely around the forward end **31** of the element **29** or the end convolution thereof may be secured thereto, and the forward end of said spring may engage loosely around or may be secured to the stem **16**.

The writing instrument **6** may contain an ornamental sleeve **33** surrounding a portion of the exterior of the upper barrel section **9** and which is recessed to receive said sleeve, and against which a conventional pocket clip **34** of the writing instrument **6** engages.

FIGURE 1 shows the writing instrument **6** with the parts disposed when the instrument is not in use and is to be carried, for example, in a garment pocket. As seen in FIGURE 1, the latch **23** is in a released and retracted position and the plunger **24** is in a retracted rearmost position projecting a substantial distance rearwardly from the rear end **25** of the barrel. The forward compression spring **17** is extended and under a relatively slight compression for holding the writing unit **11** and the thrust transmitting means **27** in retracted positions. With the parts thus disposed, the ball point **13** is disposed in a restricted bore portion **35** of the barrel section **8** and which opens outwardly of the tapered forward end or nose **36** of said barrel section, and the spring **28** is relaxed and fully extended. With the parts thus disposed, the rear end of the stem **32** extends into the sleeve **22** beyond a shoulder **37** which defines the rear end of a forwardly opening notch **38** of the sleeve **22**, and so that said rear end of the stem **32** bears against the forward end of the retracted latch **23**. FIGURE 2 shows the writing instrument with the writing unti **11** in a projected position. Movement of the writing unit **11** from its position of FIGURE 1 to its position of FIGURE 2 is accomplished by exerting a forward pressure on the rear end of the plunger **24** for displacing said plunger forwardly from its position of FIGURE 1 to its position of FIGURE 2. The latch element **23** is displaced forwardly with the plunger **24** for moving the element **29** of the thrust transmitting means **27** forwardly in unison with said latch element and from its position of FIGURE 1 to its position of FIGURE 2. The forward end of the latch element **23** has a lateral projection **39**. When the projection **39** moves into registry with the notch **38**, the latch element is caused to rock in the sleeve **22** so that the projection **39** swings into the notch **38**. When the forward pressure is released on the plunger **24** the springs **17** and **28** cause a rearwardly facing shoulder **40** of the projection **39** to abut against the forwardly facing end or

shoulder **37** of the notch **38** for thereby latching the assembly **21** in its projected position of FIGURE 2 to hold the writing unit **11** in its projected writing position of said figure.

As the rigid element **29** is projected forwardly with the latch element **23** from its retracted position of FIGURE 1 toward its projected position of FIGURE 2, the rear spring **28** is compressed. The spring **28** is stronger than the spring **17** so that after an initial partial loading of the spring **28**, the writing unit **11** will be projected forwardly and when the latch element **23** and the rigid element **29** have reached their forwardmost position of FIGURE 2, the writing unit **11** will be in its fully projected position of FIGURE 2 with the ball point **13** thereof disposed beyond and spaced from the forward end or nose **36** of the barrel **7**. In this position of the parts, the springs **28** and **17** will be compressed or loaded; however, the spring **28** is stronger than the spring **17** to normally maintain the ball point **13** in its position of FIGURE 2 and with the spring **17** tending to bias the writing unit **11** rearwardly and back to its position of FIGURE 1.

In writing with the instrument **6** pressure is applied to the ball point **13** through the barrel **7**, latch assembly **21**, thrust transmitting means **27** and the remainder of the writing unit **11**. Accordingly, the spring **28** permits the writing unit **11** including the ball point **13** to yield rearwardly while the instrument **6** is in use so that the ball point **13** will yield from its position of FIGURE 2 part way to the barrel nose **36**, and will have a floating action back and forth between its position of FIGURE 2 and the nose **36** so that it will glide smoothly over a writing surface, not shown, and with a substantially uniform pressure being exerted on said surface so that an even flow and an even distribution of ink onto the writing surface will result. In addition, this gliding or floating action of the point **13** will produce an effortless writing action on the part of the user of the instrument **6**.

The shoulder **40** is disengaged from the shoulder **37** in a conventional manner by pressure again being exerted on the rear end of the plunger **24** in a forward direction, so that when the plunger **24** is thereafter released the loaded but weaker spring **17** may displace the writing unit **11**, thrust transmitting means **27**, latch element **23** and plunger **24** back to their retracted positions of FIGURE 1. Actually, when the assembly **21** is unlatched the spring **28** will initially move the latch assembly parts and the element **29** substantially back to their positions of FIGURE 1, during which movement the spring **28** will be unloaded, and thereafter the spring **17** can move the writing unit **11** rearwardly to its retracted position.

It will be understood that the yieldable thrust transmitting means **27** could include only the spring **28** which could be made longer so that its rear end would engage directly with the latch element **23**. It will also be understood that the yieldable thrust transmitting means could be utilized with other types of retractable ball point writing instruments having different latch assemblies from the latch assembly **21**, which is only intended to illustrate a conventional latch assembly for holding the writing unit in a projected position and which may be released so that the writing unit can be moved rearwardly to a retracted position by a spring such as the spring **17**.



Various other modifications and changes are contemplated and may obviously be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

A writing instrument including a barrel, a writing unit reciprocably mounted in said barrel having a ball point defining a forward end thereof, a latch assembly supported in the rear part of said barrel, a spring contained in a forward part of the barrel and bearing against a forwardly facing part of the writing unit for urging said writing unit rearwardly toward the latch assembly and to a retracted position, and a yieldable thrust transmitting means disposed in said barrel and having a forward end engaging a rear end of the writing unit and a rear end engaging a part of said latch assembly, said thrust transmitting means being longitudinally compressed by manipulation and movement of said part of the latch assembly forwardly to a projected position for biasing the writing unit forwardly of the barrel against the action of said spring to yieldably support the ball point in a projected position beyond the forward end of the barrel and to retain said part of the latch assembly latched in a projected position, said thrust transmitting means including a compression spring constituting a forward portion thereof and a rigid element constituting the rear portion thereof, said compression spring being of a strength greater than the strength of said first mentioned spring, and the over-all length of said thrust transmitting means being such as to occupy the space in the barrel between said part of the latch assembly and the rear end of the writing unit with the spring thereof substantially unloaded when the writing unit is held in a retracted position by said first mentioned spring for retaining said part of the latch assembly in a released position.


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