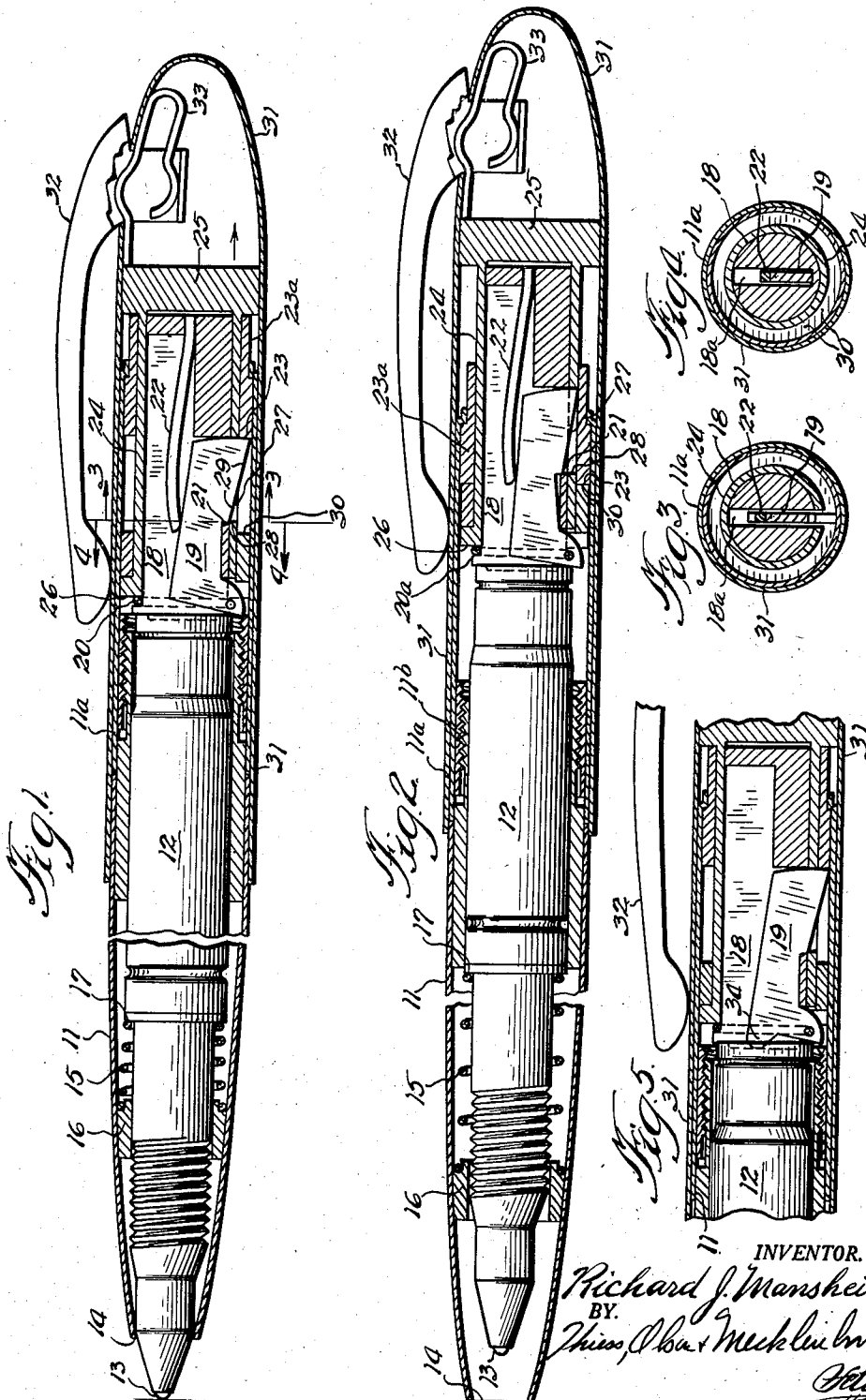


June 12, 1951

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WRITING INSTRUMENT

2,557,054

Filed Nov. 12, 1948



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# UNITED STATES PATENT OFFICE

2,557,054

## WRITING INSTRUMENT

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Application November 12, 1948, Serial No. 59,585

7 Claims. (Cl. 120—42.03)

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My invention relates to a writing instrument and has for an object the provision of a simple and inexpensive writing instrument having a writing element within said instrument movable to an operative or projected position and to an inoperative or retracted position alternatively.

Another object of my invention is to provide a writing instrument in which the writing element is securely held in either a projected position or a retracted position and in which the position of the writing element is easily and positively controlled by a simple and reliable actuating mechanism.

According to my invention, the writing element may be moved between the two said positions by alternatively pushing and pulling on an actuating mechanism. Accordingly, another object of my invention is to provide, what I term, a push-pull control of the writing element within the instrument.

My invention, together with further objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawings:

Figure 1 is a longitudinal broken cross-sectional view of a writing instrument embodying my invention and showing the writing element in the projected position;

Fig. 2 is a similar view showing the writing element in its retracted position;

Fig. 3 is a cross-sectional view along the line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view along the line 4—4 of Fig. 1; and

Fig. 5 is a partial cross-section similar to Fig. 1 but showing an alternative embodiment of my invention.

Referring now more particularly to the drawings, a barrel 11 forms the main body of the writing instrument. A writing element 12 is contained within the barrel 11. It will be noted that in the drawings I have shown my invention adapted to a ball point pen. However, it will be apparent to those skilled in the art that my invention is equally adaptable to fountain pens, pencils and other writing instruments.

The writing point, the ball point 13 in the drawing, is contained within the barrel 11 when the writing element 12 is in its retracted position as shown in Fig. 2. When the writing element 12 is in its projected position, as shown in Fig. 1, the writing point 13 extends through an opening 14 at the lower end of the barrel 11. It will be

apparent that the projected position, shown in Fig. 1, is the operative or writing position, and that the retracted position, shown in Fig. 2, is the inoperative position. The latter position is provided to protect the writing point and to prevent the accidental staining of a garment or other article with which the instrument comes into contact. It will be noticed also that when the writing element 12 is in the inoperative or retracted position, this protection is obtained without the use of a cap. The writing element 12 is a replaceable cartridge and houses the usual ink reservoir and ink passageways leading to the ball point 13.

A compression spring 15 is located between a seat 16 attached to the inner surface of the barrel 11 and a shoulder 17 on the writing element 12. This spring urges the writing element toward its retracted position. A holding member 18 is located within the barrel 11 above and axially abutting the writing element 12. The holding member 18 includes a latch 19 located within a slot 18a in the holding member 18 and is pivotally mounted thereon by means of a ring wire clip 20 positioned within a circumferential groove 20a formed in the holding member 18.

The upper end of the latch 19 is adapted to extend outwardly through an opening 21 in the side of the holding member 18. A leaf spring 22 mounted within slot 18a urges the upper end of the latch 19 toward its outward position.

When the writing element 12 is in its projected or operative position, the upper end of the latch 19 extends outwardly through the opening 21 under the influence of the spring 22 to a position in which the latch 19 engages a shoulder or catch 23 on the inner surface of a collar 23a secured to the end of the barrel 11. When the latch 19 is so engaged with the shoulder 23, it retains the holding member 18 and hence the writing element 12 in their lower positions. This lower position for the writing element 12 is, of course, its projected or operating position.

In the embodiments shown, the holding member 18 and the writing element are separate parts. However, since the two parts are always in abutting relation in the particular embodiment shown in Figs. 1 and 2, the two parts can be made one. In ball point pens, it is common practice to make the writing element or cartridge removable and replaceable. In applying my invention to a ball point pen, it is, therefore, more economical and desirable to make the holding member separate from the writing element in order that a smaller number of parts need be replaced.

In the instrument shown, the writing element

can be removed and replaced by first removing the cap 31 from the upper portion 11a of the barrel with which it is in frictional telescopic engagement. The upper portion 11a separates from the main body 11 at the threaded connection 11b. The cartridge can then be readily replaced and the unit reassembled.

An actuating mechanism 24 surrounds the holding member 18. A downward force on any portion of the actuating mechanism 24, for example on the upper portion 25 thereof, will force the holding member 18 downwardly through contact of the shoulder 26 of the actuating mechanism with the wire clip 28 of the holding member.

When the actuating mechanism has forced the holding member 18 and the writing element 12 downwardly, the upper end of the latch 19 will move outwardly under the influence of the spring 22 through an opening 21 in the holding member 18, through a registering opening 27 in the actuating mechanism 24, and into engagement with a shoulder 23 on the inner surface of the barrel 11. The engagement of the latch 19 with the shoulder 23 prevents upward movement of the holding member 18 and hence of the writing element 12 when writing pressure is applied to the ball point 13.

However, when the cap 31 is manually pulled upwardly, the frictional engagement of the cap with the actuating mechanism 24 also permits the actuating mechanism to be pulled upwardly and the edge 28 of the opening 27 in the actuating mechanism 24 engages the sloping surface 29 of the latch 19 and forces the latch inwardly. After the latch 19 has been forced inwardly for a sufficient distance, its upper portion no longer engages the catch 23, and the holding member 18 and the writing element 12 move upwardly under the influence of the spring 15 until the shoulder 30 of the actuating mechanism 24 engages the shoulder 23 of the collar 23a on the barrel 11. The writing element 12 is then located in its retracted position as shown in Fig. 2.

As previously indicated, the preferred embodiment includes the cap 31 having frictional engagement with the sides of the upper portion 25 of the actuating mechanism 24 and the upper portion of the barrel 11a. With this arrangement, the cap 31 serves as a portion of the actuating mechanism.

For convenience in carrying the writing instrument in a garment pocket, a pocket clip 32 is shown connected to the cap 31 by means of a spring 33.

In the embodiment of my invention illustrated by Fig. 5, the need of the spring 22 is eliminated. In this arrangement, the latch 19 has a dog or cam 34 extending downwardly from its lower end and engaging the upper end of the writing element 12. This arrangement permits the use of the spring 15 to urge the latch 19 toward its outer or engaging position. The spring 15, as previously explained, urges the writing element 12 upwardly, and as will be readily understood from Fig. 5, this upward force is transmitted to the latch 19 through the cam 34 and urges the upper end of the latch 19 outwardly. In order to disengage the latch, the cap is merely pulled upwardly in the manner described above.

While I have shown and described two particular embodiments of my invention in considerable detail, it will be obvious to those skilled in the art that changes and modifications may be made without departing from my invention in its broader aspects, and I, therefore, aim in the ap-

ended claims to cover all such changes and modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A writing instrument comprising a body including a barrel having a lower end with an opening therethrough; a writing element located substantially within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a spring associated with said body and with said writing element and urging said element toward said retracted position; a holding member located above and axially abutting said writing element and movable between a first position, corresponding to said retracted position of said writing element, and a second position, corresponding to said projected position of said writing element, said member including a latch, pivotally mounted thereon and engageable with a catch on said body when said member is in said second position, said latch being resiliently urged into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a lower portion radially outward of and axially slidable with respect to said holding member and an upper portion extending without said body for manual control of said actuating mechanism, said lower portion being arranged to abut axially a shoulder on said holding member whereby said actuating mechanism can force said holding member and said writing element downwardly against the action of said spring to said second position and said projected position respectively, said lower portion also being arranged to slide upwardly along said holding member and over said latch to force said latch out of engagement with said catch, whereby said holding member and said writing element are free to move to said first position and said retracted position respectively under the influence of said spring.

2. A writing instrument comprising a body including a barrel having a lower end with an opening therethrough; a writing element located substantially within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a first spring associated with said body and said writing element and urging said element toward said retracted position; a holding member located above and axially abutting said writing element and movable between a first position, corresponding to said retracted position of said writing element, and a second position, corresponding to said projected position of said writing element, said member including a latch pivotally mounted thereon and engageable with a catch on said body when said member is in said second position, said holding member also including a second spring mounted thereon which urges said latch into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a lower portion radially outward of and axially slidable with respect to said holding member and an upper portion extending without said body for manual control of said actuating mech-

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anism, said lower portion being arranged to abut axially a shoulder on said holding member whereby said actuating mechanism can force said holding member and said writing element downwardly against the action of said first spring to said second position and said projected position respectively, said lower portion also being arranged to slide upwardly along said holding member and over said latch to force said latch out of engagement with said catch against the action of said second spring, whereby said holding member and said writing element are free to move to said first position and said retracted position respectively under the influence of said first spring.

3. A writing instrument comprising a barrel having a lower end with an opening there-through; a writing element located within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a first spring located within said barrel and urging said element toward said retracted position; a holding member located within said barrel above and axially abutting said writing element and movable between a first position, corresponding to said retracted position of said writing element, and a second position, corresponding to said projected position of said writing element, said member including a latch pivotally mounted thereon and engageable with a catch on the inner surface of said barrel when said member is in said second position, said holding member also including a second spring mounted thereon which urges said latch into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a ring portion within said barrel and surrounding a portion of said holding member and an upper portion extending without said barrel for manual control of said actuating mechanism, said ring portion being arranged to abut axially a shoulder on said holding member whereby said actuating mechanism can force said holding member and said writing element downwardly against the action of said first spring to said second position and said projected position respectively, said ring portion also being arranged to slide upwardly along said holding member and over said latch to force said latch out of engagement with said catch against the action of said second spring, whereby said holding member and said writing element are free to move to said first position and said retracted position respectively under the influence of said first spring.

4. A writing instrument comprising a body including a barrel having a lower end with an opening therethrough; a writing element located substantially within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a first spring associated with said body and said writing element and urging said element toward said retracted position; said element including a latch pivotally mounted thereon and engageable with a catch on said body when said element is in said projected position, said writing element also including a second spring mounted thereon which urges said latch into engagement with said catch;

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and an actuating mechanism for controlling the position of said writing element, said mechanism including a lower portion radially outward of and axially slidable with respect to said writing element and an upper portion extending without said body for manual control of said actuating mechanism, said lower portion being arranged to abut axially a shoulder on said writing element whereby said actuating mechanism can force said writing element downwardly against the action of said first spring to said projected position, said lower portion also being arranged to slide upwardly along said writing element and over said latch to force said latch out of engagement with said catch against the action of said second spring, whereby said writing element is free to move to said retracted position under the influence of said first spring.

5. A writing instrument comprising a barrel having a lower end with an opening there-through; a writing element located within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a first spring located within said barrel and urging said element toward said retracted position; said element including a latch pivotally mounted thereon and engageable with a catch on the inner surface of said barrel when said element is in said projected position, said writing element also including a second spring mounted thereon which urges said latch into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a ring portion within said barrel and surrounding a portion of said writing element and an upper portion, extending without said barrel, for manual control of said actuating mechanism, said ring portion being arranged to abut axially a shoulder on said writing element whereby said actuating mechanism can force said writing element downwardly against the action of said first spring to said projected position, said ring portion also being arranged to slide upwardly along said writing element and over said latch to force said latch out of engagement with said catch against the action of said second spring, whereby said writing element is free to move to said retracted position under the influence of said first spring, said actuating mechanism including a cap covering the upper end of said instrument and overlapping the upper edge of said barrel, said cap being frictionally engaged with said upper portion of said actuating mechanism.

6. A writing instrument comprising a body including a barrel having a lower end with an opening therethrough; a writing element located substantially within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a spring associated with said body and with said writing element and urging said element toward said retracted position; a holding member located above and axially abutting said writing element and movable between a first position, corresponding to said retracted position of said writing element, and a second position, corresponding to said projected position of said writing element, said member including a latch, piv-

otally mounted thereon and engageable with a catch on said body when said member is in said second position, said latch being in contact with the upper end of said writing element whereby said spring, acting through said writing element, resiliently urges said latch into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a lower portion radially outward of and axially slidable with respect to said holding member and an upper portion extending without said body for manual control of said actuating mechanism, said lower portion being arranged to abut axially a shoulder on said holding member whereby said actuating mechanism can force said holding member and said writing element downwardly against the action of said spring to said second position and said projected position respectively, said lower portion also being arranged to slide upwardly along said holding member and over said latch to force said latch out of engagement with said catch, whereby said holding member and said writing element are free to move to said first position and said retracted position respectively under the influence of said spring.

7. A writing instrument comprising a barrel having a lower end with an opening there-through; a writing element located within said barrel and movable therein to a retracted position and to a projected position, said element having a writing point which extends through said opening in said barrel when said element is in said projected position; a spring located within said barrel and urging said element toward said retracted position; a holding member located within said barrel above and axially abutting said writing element and movable between a first position, corresponding to said retracted position of said writing element, and a second position, corresponding to said projected position of said writing element, said member in-

cluding a latch, pivotally mounted thereon at its lower end and engageable at its upper end with a catch on the inner surface of said barrel when said member is in said second position, said latch being at its lower end in contact with the upper end of said writing element whereby said spring, acting through said writing element, resiliently urges the upper end of said latch outwardly into engagement with said catch; and an actuating mechanism for controlling the position of said writing element, said mechanism including a ring portion within said barrel and surrounding a portion of said holding member and an upper portion, extending without said barrel, for manual control of said actuating mechanism, said ring portion being arranged to abut axially a shoulder on said holding member whereby said actuating mechanism can force said holding member and said writing element downwardly against the action of said spring to said second position and said projected position respectively, said ring portion also being arranged to slide upwardly along said holding member and over said latch to force said latch out of engagement with said catch against the action of said second spring, whereby said holding member and said writing element are free to move to said first position and said retracted position respectively under the influence of said spring.

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