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H. H. BLAKE, JR

2,375,188

DRAFTING PEN

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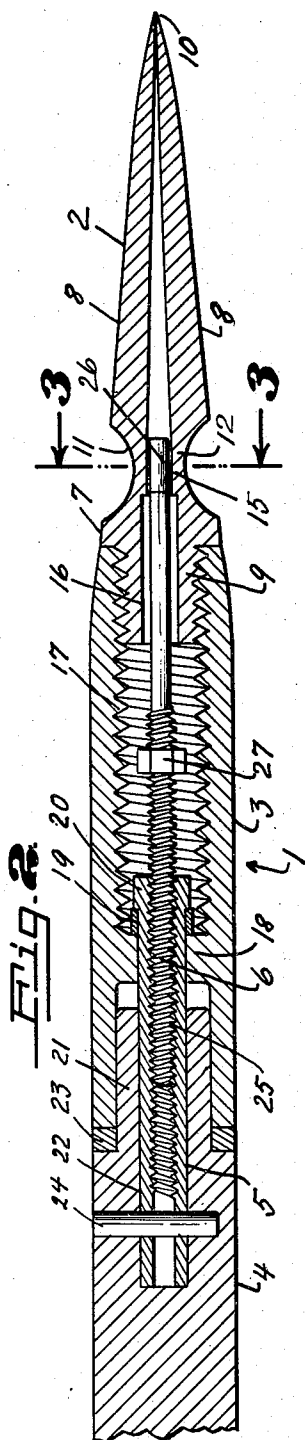
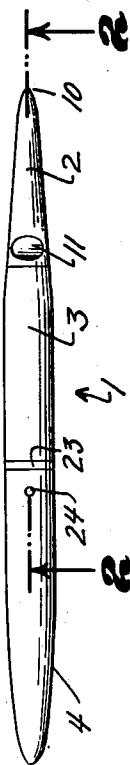
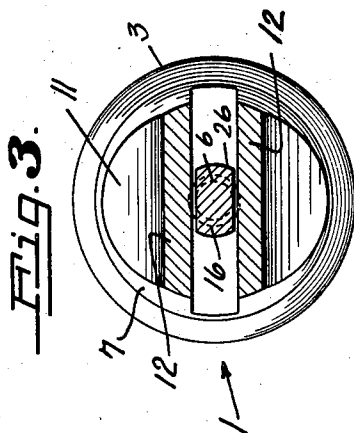


Fig. 1.



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DRAFTING PEN

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16 Claims. (Cl. 120—43)

The present invention relates to improvements in a drafting pen, and is intended to carry forward certain ideas and improvements disclosed in my Patent No. 2,231,246 of February 11, 1941.

More particularly it is proposed to provide a pen of the character described that may be conveniently used for drawing lines and for lettering, so as to make it unnecessary for the draftsman to shift from one pen to another for the purposes aforesaid.

A further object of my invention is to provide a pen of the character described that presents a smooth and streamlined surface from one end to the other, substantially of fountain pen thickness, tapering gradually toward the point, and in which the adjusting means are arranged inside the pen, whereby the outer face is left entirely unobstructed.

A still further object of my invention is to provide a novel arrangement of pen point sections lending itself particularly to the carrying out of the main idea of my invention, and a novel operating means for spreading the sections adapted for control by a cap at the upper end of the pen.

And finally it is proposed to simplify the construction of the pen previously described, whereby the front portion of the pen may be made in one piece and the cap is firmly anchored against removal.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel features of my pen will be fully defined in the claims hereto attached.

The preferred form of my invention is illustrated in the accompany drawing in which:

Figure 1 shows a side elevation of my combination ruling and lettering pen;

Figure 2, a longitudinal section taken along line 2—2 of Figure 1, the section being shown on an enlarged scale; and

Figure 3, a transverse section taken along line 3—3 of Figure 2, drawn to a still larger scale.

While I have shown only the preferred form of my invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached, without departing from the spirit of the invention.

Referring to the drawing in detail, my pen 1 comprises in its principal features a point 2, a stem 3, a cap 4, a sleeve 5 for holding the cap to the stem, and an operating member 6 entirely concealed within the pen.

The pen point comprises a base 7 having two point sections 8 projecting forwardly therefrom

and having a reduced threaded extension 9 projecting rearwardly therefrom. The two point sections 8 are arranged in confronting relation, and in their outer surfaces gradually taper from the diameter of the base to a point as shown at 10.

Near the base the point sections are formed with cavities 11 which provide weakened portions 12 on which the outer parts of the points 10 may turn for spreading the point sections. The material of the point has sufficient elasticity to bring the point sections together again when the expanding force is withdrawn.

The cavities 11 extend straight across the point sections, and are curved along the length of the pen as shown in Figure 2, the curvatures being drawn substantially to the arc of a circle.

The inner faces of the point sections are flat and run parallel to one another for a short distance beginning at the base, as at 15, to a point intermediate of the weakened portion, and from there they taper toward one another until they come to the point 10, where they bear upon one another under slight pressure to form an ink well.

The outer surfaces of the point sections may be finished to the form shown and the inner end of the pen point be completed by drilling a cylindrical bore 16 into the pen point from the other end up to the beginning of the slot and by threading the reduced extension 9.

The stem 3 is hollow throughout the length thereof and has an internal thread 17 fitting on the reduced extension of the pen point. It is formed with an internal shoulder 18 and may have a metallic ring 19 bearing on the shoulder from the inner end.

The sleeve 5 is formed with a head 20 adapted to bear on the ring 19, with the sleeve projecting rearwardly from the stem. The cap 4 has a reduced front end 21 telescoping into the rear end of the stem with freedom of turning movement and is formed with a bore 22 adapted to receive the rear end of the sleeve 3.

The telescoping engagement may be omitted, and in that case the sleeve 5 alone would be relied on for holding the cap to the stem.

A ring 23 may be introduced between the stem and the cap. The latter is anchored to the sleeve by a cross-pin 24 whereby the cap and the stem are firmly held in assembled relation.

The operating member 6 is in the form of a rod having its rear end threaded into the rear portion of the sleeve 5, as at 25, an intermediate portion extending through the stem and a front portion projecting into the pen point.

The front end of the rod is formed with a head or plunger 26 flattened on opposite sides to loosely fit between the flat faces of the point sections, but sufficiently wide, as shown in Figure 3, to prevent rotation within the slot.

When retracted, as in Figure 2, the head bears against the material of the base at the inner end of the slot whereby further retraction is prevented.

The head has sufficient clearance in the rear end of the slot to allow it to enter between the two point sections for a certain distance without forcing the sections apart, as shown in Figure 2.

Since the rod is thus held against turning movement, rotation of the cap in one direction or the other will advance or retract the rod through the threads 25. As the rod advances, the head serves as a wedge to spread the point sections apart to increase the thickness of a line to be drawn by the pen, and as the rod is retracted, it will allow the point sections to move toward one another until they come in contact.

The rod may have a nut 27 threaded thereon to bear on the rear end of the base for limiting the extent of the forward movement of the rod.

The method of assembling my pen is very simple:

The rod 6 is preferably made a permanent part of the pen point so as to form a unit therewith. The stem 3 and the cap 4 may be readily united into a second unit by means of the sleeve 5. The two units may then be connected by threading the operating member 6 into the sleeve 5 and the pen point into the stem. The head 26 has sufficient lengthwise movement in the slot to compensate for the difference in the two threads.

I claim:

1. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the said sections having respective weakened portions near the base and being bent toward one another at said portions to form a tapered ink well whereby the point sections may be turned symmetrically on the weakened portions for spreading operations.

2. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the said sections having cavities in the outer faces thereof near the base to provide respective weakened portions and being bent toward one another at the weakened portions to form a tapered ink well whereby the point sections may be turned symmetrically on the weakened portions for spreading operations.

3. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the said sections having weakened portions near the base and being bent toward one another at said portions to form a tapered ink well, and having means movable therefrom for spreading the sections apart.

4. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the said sections having cavities in the outer faces thereof near the base to provide weakened portions and being bent toward one another at the weekend portions to form a tapered ink well, and having means movable therebetween for spreading the sections apart.

5. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween,

a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, and an operating member having threaded connection with the cap and extending through the stem into the space between the pen point sections for separating the same when the cap is turned, the end of the operating member extending between the point sections being flattened to hold the said members against rotation, and the said members having means adjustable thereon and cooperable with the base for limiting the advance movement of said member.

6. A drafting pen comprising a base having a pair of complementary pen point sections projecting from the front thereof, the point sections being shaped to form a tapered ink well therebetween, a hollow stem secured upon the rear end of the base and having a shoulder therein, a sleeve bearing on said shoulder and extending rearwardly beyond the stem, a cap revolvably attached to the rear end of the stem and anchored to the sleeve for holding the cap against removal, and an operating member having a rear end threaded into the sleeve and a front end projecting into the space between the point sections for separating the latter when the cap is turned, the operating member having means for holding the same against rotation.

7. A drafting pen comprising a base having a pair of complementary pen point sections projecting from the front end thereof, the point sections being shaped to form a tapered ink well therebetween, a hollow stem secured upon the rear end of the base and having a shoulder therein, a sleeve bearing on said shoulder and extending rearwardly beyond the stem, a cap revolvably attached to the rear end of the stem and anchored to the sleeve for holding the cap against removal, and an operating member having a rear end threaded into the sleeve and a front end projecting into the space between the point sections for separating the latter when the cap is turned, the front end of the operating member being flattened to hold the same against rotation.

8. A drafting pen comprising a base having a pair of complementary pen point sections projecting from the front end thereof, the point sections being shaped to form a tapered ink well therebetween, a hollow stem secured upon the rear end of the base and having a shoulder therein, a sleeve bearing on said shoulder and extending rearwardly beyond the stem, a cap revolvably attached to the rear end of the stem and anchored to the sleeve for holding the cap against removal, and an operating member having a rear end threaded into the sleeve and a front end projecting into the space between the point sections for separating the latter when the cap is turned, the front end of the operating member being flattened to hold the same against rotation, and the said member having means adjustable thereon and cooperable with the base for limiting the advance movement of the member.

9. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween, and tensioned to normally bear on one another at the tips, a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, a plunger movable longitudinally between the point sections for spreading the

same when the plunger is advanced, and means operable by the cap for advancing the plunger.

10. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween, and tensioned to normally bear on one another at the tips, a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, a plunger movable longitudinally between the point sections for spreading the same when the plunger is advanced, means operable by the cap for advancing the plunger, and means for limiting the forward movement of the plunger.

11. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween, and tensioned to normally bear on one another at the tips, a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, a plunger movable longitudinally between the point sections for spreading the same when the plunger is advanced, means operable by the cap for advancing the plunger, and means for limiting the rearward movement of the plunger.

12. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween and tensioned to normally bear upon one another at the tips, a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, means for locking the cap to the stem, a plunger movable longitudinally between the point sections for spreading the same, and means operable by the cap for moving the plunger.

13. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well therebetween and tensioned to normally bear upon one another at the tips, a stem secured upon the base opposite the point sections, a cap revolvable upon the free end of the stem, means for locking the cap to the stem, a plunger movable longitudinally between the point sections for spreading the same, and means operable by the cap for moving the plunger, the latter means being connected into the locking means.

14. In a drafting pen, a substantially rigid one-piece pen point comprising a rigid annular base having a pair of symmetrical pen point sections formed integrally therewith and projecting therefrom, the sections having flat and straight inner faces and curved outer faces tapering from the base toward the tips, and being bent toward one another to come to a point at the tips and tensioned to exert pressure upon one another at the tips.

15. A drafting pen comprising a base having a pair of complementary pen point sections projecting therefrom, the point sections being shaped to form a tapered ink well and being tensioned to bear on one another at the tips, and a plunger movable between the point sections for forcing the same apart when the plunger is advanced.

16. In a drafting pen, a hollow stem having a shoulder therein, a cap revolvable on the rear end of the stem, a sleeve inside the stem and the cap and having a head bearing on the shoulder, and means for anchoring the sleeve to the cap, the sleeve having an inner thread to serve as an operating means when the cap is revolved.

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