June 13, 1950 H. G. BEUMER 2,511,561

PEN POINT

Filed Aug. 31, 1946

Fig. 1.

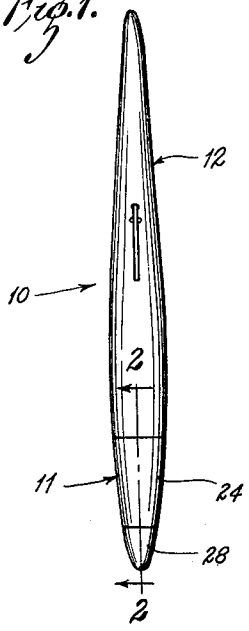


Fig. 2.

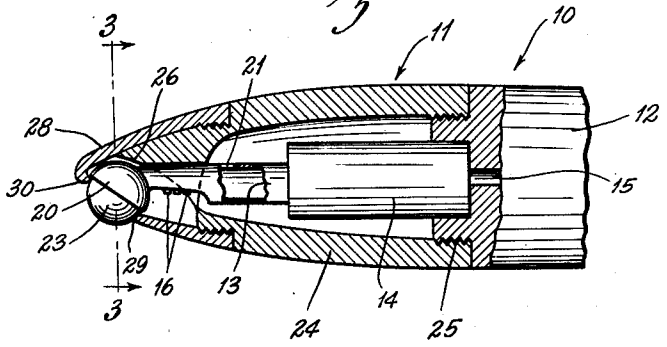


Fig. 3.

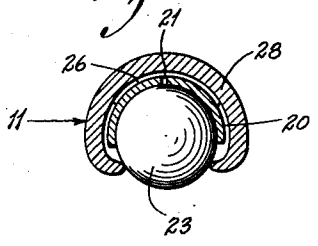


Fig. 4.

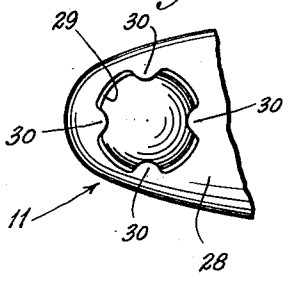
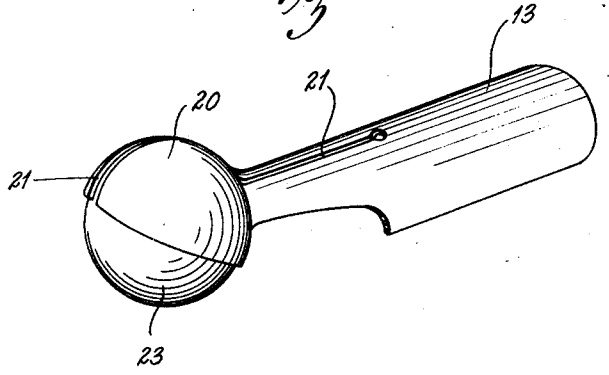


Fig. 5.



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PEN POINT

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8 Claims. (Cl. 120—42.4)

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The present invention relates to a pen point.

It is an object of the invention to provide a ball point pen that affords the advantages of a ball point, but which may be used with regular ink and which affords also the advantages of flow control characteristic of regular pens.

More particularly, it is an object of the invention to provide a ball point pen that is combined with a feeder of a split type, so that conventional pressure on the pen will cause the shield to spread and increase the flow of ink to the point.

Another object of the invention is to provide a ball point of this kind that may be used in regular writing position.

In the drawings:

Fig. 1 is a side elevation of a pen embodying this invention;

Fig. 2 is a longitudinal section of the point of the pen taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse section through the ball, taken on the line 3—3 of Fig. 2;

Fig. 4 is a bottom view of the ball mounted in the pen; and

Fig. 5 is a perspective view of the ball and the split shield.

The pen is generally indicated at 10 and has a point section 11 connected to a barrel section 12 that contains the usual ink reservoir.

The tip section 11 is made up of several parts. There is a metal point 13 that interfits with a suitable feed control 14 attached to the end of the barrel section 12. A conventional feed passage 15 leads from the reservoir in the barrel to the interior of the point or nib 13. This feed control likewise contains conventional feeder capillaries 16.

The nib 13 is similar to conventional nibs, except that at its point end it has a section 20 that is formed in the shape of the portion of a sphere. The entire end, including the portion 20, is slotted at 21, so that the two halves of the section 20 may spread greater or lesser degrees apart in the same manner that the two halves of a conventional pen point now separate when pressure is applied to them.

The section 12 is adapted to receive a ball 23 and to hold the same for rotating movement.

An intermediate cover 24 that is more or less tubular has an inner passage that will receive the nib 13 and its spherical end 20. The member 24 is threaded at 25 to be supported upon the barrel 12. This member 24 likewise has a downwardly extending abutment portion 26 that is disposed slightly above the outer surface of the spherical portion 20 when the parts are located in place.

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A tip cover 28 is threaded as shown to the outer end of the inner cover 24. This tip cover has an opening 29 on the under side of its outer ends, which opening has lugs 30 projecting outwardly therefrom around its periphery. These lugs extend outwardly to points that are closer together than the maximum equatorial dimension of the ball, so that, when the tip cover 28 is located in place, the ball will be held in the cup 20, but may rotate therein. The tip cover 28 likewise supplements the abutment 26 on the inner cover 24 to form a portion above the cup 20, against which the cup may be flexed. This abutment thereby determines the maximum flexure of the cup member.

Operation

In conventional fashion, ink flows from the reservoir of the barrel down to the nib, and there it enters the inner surface of the cup 20. The ball is freely rotatable in the cup, and thereby has its surface covered with ink which is tracked onto paper for writing purposes.

The feed of the ink may be increased by increasing the pressure applied to the pen. Such pressure causes the ball 23 to press against the two halves of the cup 20, which may be spread because of the presence of the slit 21. Thus the flow of ink may be varied as it is in conventional pens, and yet the advantages of the ball point are secured.

It will be seen that the design of this point attains the advantages of both the ball point pen and the conventional pen. The ball point in this arrangement may be used with conventional ink, and the rate of flow may be determined by the pressure applied to the pen as is true of conventional pens. Likewise, this arrangement permits the ball to be off the center of the end of the pen, so that writing at the conventional angle may be done. Furthermore, no radical change is design of the pen is required to embody this invention therein.

It will be understood that the feed parts of the present disclosure are shown merely for illustration, and that any of the conventional types of feed may be used. Many variations may be made in this invention, as will be understood.

What is claimed is:

1. A pen including a nib for use with free flowing ink, said nib having a receiver at its end to engage partially around a ball, a ball in said receiver said nib having a feed regulating slot extending to the ball, the receiver being constructed of yieldable material to change the open-

ing of the slot in response to change in pressure on the ball.

2. A pen including a point for use with free flowing ink, a receiver on the end of the point shaped like a portion of a hollow sphere, said receiver being split so that it may separate in response to pressure, and a ball in said receiver adapted to receive ink from the receiver for writing purposes.

3. A pen point including a shank section and a hollow hemispherical shaped tip mounted thereon, the tip being concave downwardly, a slot extending across the tip dividing the same so that the two portions thereof may be separated and ink may flow between them.

4. A pen including a point for use with free flowing ink, a tip on the point in the form of a hollow portion of a sphere, a ball engaged in said tip and adapted to be used for writing, the tip being split so that pressure applied to the ball will spread the sections thereof and increase the ink flow thereinto, means supporting the tip, and abutment means limiting the flexure of the portions of the tip by the pressure applied to the ball.

5. A pen having a writing end, a ball writing element, means supporting the ball writing element rotatably in the end, said means having an opening through which the ball projects to one side of the said writing end, said support means including a flexible ball engaging member, said member having an ink-conducting means thereon, and means responsive to variation in pressure on the ball to vary the amount of ink flowing from the conducting means to the ball.

6. A pen including a point for use with free flowing ink, a tip on the point in the form of a portion of a hollow sphere, and a ball rotatably mounted in said tip, the tip and a portion of the point adjacent thereto being split so as to form

sections so that pressure applied to the ball will spread the sections apart and increase the flow of ink to the ball.

7. A pen including a point for use with free flowing ink, a tip on the point in the form of a portion of a hollow sphere, a ball rotatably mounted in said tip, the tip and a portion of the point adjacent thereto being split so as to form sections so that pressure applied to the ball will flex and spread the sections apart and increase the flow of ink to the ball, and abutment means limiting the amount of flexure of the sections.

8. A pen including a point member for use with free flowing ink, a ball rotatably mounted on the end of the point member, and means to conduct ink to the ball, said conducting means including an ink passage, and pressure-responsive means connected to the ball and responsive to variation in pressure exerted against the ball to vary the flow capacity of the passage so as to vary the amount of ink flowing to the ball.

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