

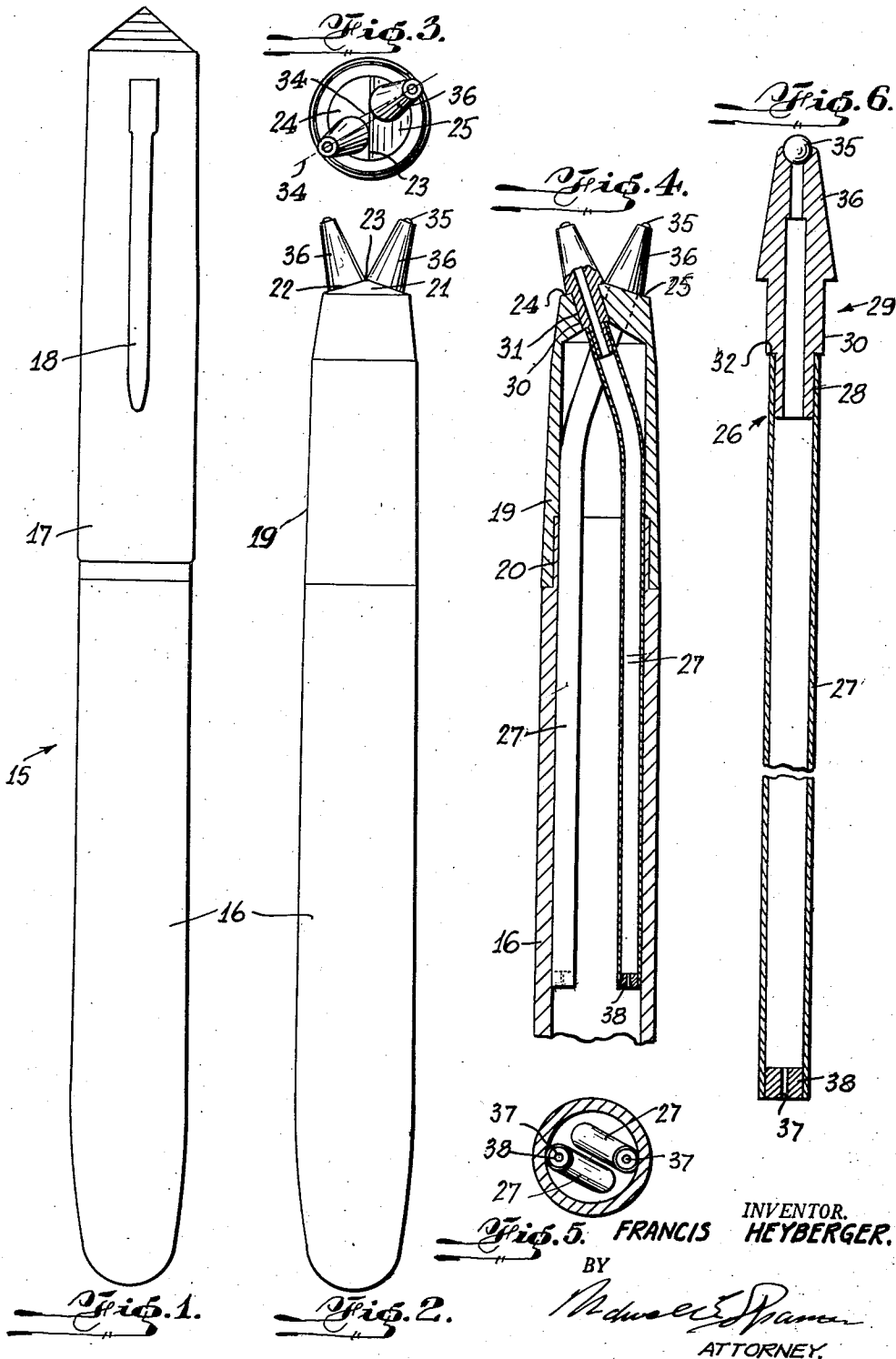
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F. HEYBERGER
WRITING INSTRUMENT

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Filed Nov. 14, 1947

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

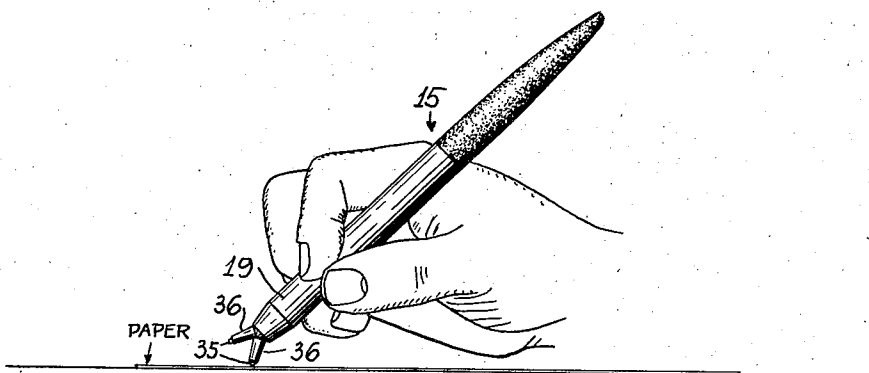


Fig. 7.

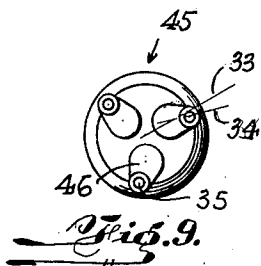


Fig. 9.

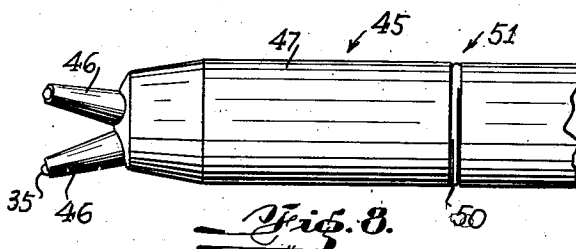


Fig. 8.

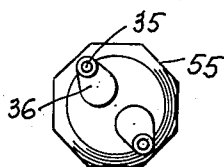


Fig. 11.

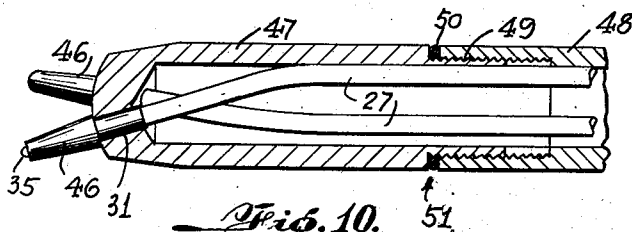


Fig. 10.

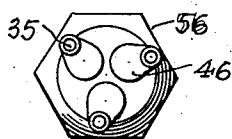


Fig. 12.

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UNITED STATES PATENT OFFICE

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WRITING INSTRUMENT

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9 Claims. (Cl. 120—42.12)

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This invention relates to improvements in fountain pens, and more particularly to the kind which uses a ball point and an ink of a pasty consistency and of a viscous material.

It is a known fact that many people use more than one fountain pen since their work requires the use of many colored inks. Bookkeepers, for example, need two kinds of ink in their work, one of which is preferably red. Carrying two or more fountain pens in one's pocket is cumbersome, and using two such pens is time-wasting.

Also, many people have taken advantage of the benefits derived from the use of ball-point pens.

It is therefore an object of this invention to provide a ball-point fountain pen with a plurality of writing points.

It is a further object of this invention to provide a ball-point fountain pen, having a plurality of ball-points with ink-containing cartridges of a pliable material.

It is a still further object of this invention to provide a multiple ball-point fountain pen, which is simple in construction and in which used-up cartridges of multi-colored inks can be readily replaced.

It is a still further object of this invention to provide a fountain pen of the ball-point type with a ball point at an angle from the axis of the pen-holder, thus permitting the writer to hold the pen in a conventional manner and at the accustomed angle, when writing, instead of the present steep angle used with known pens of this type.

These and other objects and advantages of the invention will appear as the description proceeds, it being understood, however, that it is not intended that the invention be limited to the exact details described herein.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof, all as more completely outlined herein.

To enable others skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the modification in the structure and relation contemplated by this invention, drawings depicting forms of the invention have been annexed as a part of this disclosure, and, in such drawings, like characters of reference denote corresponding parts throughout all the views, of which:

Fig. 1 is an elevational view of a pen made in accordance with the invention;

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Fig. 2 is a view similar to Fig. 1, but showing the cap removed;

Fig. 3 is a top plan view of Fig. 2;

Fig. 4 is a sectional view through the pen shown in Fig. 2, partly broken away;

Fig. 5 is a bottom view of Fig. 4;

Fig. 6 is an enlarged view of the ball point and cartridge assembly;

Fig. 7 is a view showing the use of the new pen;

Fig. 8 is a partial top view of a modified form;

Fig. 9 is a left hand end view of Fig. 8;

Fig. 10 is a cross-sectional view through Fig. 8;

Fig. 11 is a modified end view; and

Fig. 12 is another modified end view.

The pen 15 in its main parts consists of the barrel 16, the cap 17 with a clip 18 and the ball-point head 19. The body of the pen can be constructed of any suitable material. The ball-point head 19 press fits onto the reduced shank 20 of the barrel 16. The upper portion 21 is preferably provided with a beveled ridge 22 having a high edge 23 and two inclined sides 24 and 25. The ball point and cartridge units 26 project, respectively, through openings 31 in these beveled sides 24 and 25. As will be noted, from Figs. 3, 9, 11 and 12, the noses 36 of units 26 are press-fitted into the respective openings at an inclination with respect to the center line of the barrel 16 and head 19. This is done to permit the flexible cartridge tubes 27 to pass each other when inserted, as clearly seen in Fig. 5. The flexible tube 27 fits tightly on to the reduced portion 28 of the tip 29. Another reduced portion 30 is provided on tip 29 which fits into the openings 31 of the head 19. The shoulder 32 thus formed is slightly larger than the thickness of the flexible tube 27, thus facilitating insertion of the cartridge unit 26 into the head 19. The portions 30 of tips 29 fit tightly into their respective openings 31 of head 19.

The holes 31 are not only drilled at an angle with respect to the vertical center line of the pen 15, as clearly shown in Fig. 4, but their respective axes are askew with respect to one another and to the axis of the pen as indicated by the intersecting planes of symmetry 33, 34 in Fig. 9. The inclination of the hole axes enhances the usefulness of the pen, because the action of the ball-point becomes much like that of the conventional fountain pen point during writing operation, as clearly shown in Fig. 7. The ball 35 is retained in the nose 36 of the tip 29 in known manner. To permit free flow of the relatively heavy ink, with which the cartridge tube 27 is usually filled, and in order to avoid,

therefore, the possible creation of a vacuum within the flexible tube 27, a small breather hole 37 may be provided in a plug 38 fitted into the free end 39 of tube 27.

Referring now to Figs. 8, 9 and 10, a pen 45 with three ball-pointed tips 46 is illustrated. The head 47 in this instance is shown as being threaded into the barrel 48 at 49. A decorative metal ring 50 may be inserted at the joint 51. The angle arrangement of the tips 46 holding the ball points is similar to that previously described with respect to Figures 1-6.

Instead of a round barrel as shown in Figs. 1 to 10 inclusive, any other suitably shaped barrel may be used, such as, for examples, an octagon barrel 55 or a hexagonal barrel 56 (Figs. 11 and 12). The advantage of using a barrel polygonal-shaped in cross section is evident, as facilitating the positioning and gripping of the pen for writing with the selected ball-point. The cartridges may contain different colored inks.

From the foregoing description taken in connection with the accompanying drawings, it is apparent that an improved simple, practical and inexpensive device for writing instruments of the ball point type is provided. It is apparent, however, that immaterial changes, and modifications may be made by skilled persons without departing from the true spirit and scope of the invention as outlined in the appended claims.

The word, "skew," is used in the claims in the meaning of having the axes of the respective ball-carrying tips lying in different planes.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. In a ball point pen, a tubular member, a beveled end portion forming a closure for said member, said portion being formed with a plurality of inclined sides each provided with a hole extending perpendicularly thereto and communicating with the interior of said member, the axes of said holes being skew with respect to one another and to the axis of said member, a plurality of ball-carrying tip portions each press-fitted into a respective one of said apertures and having their ball-carrying ends projecting from said end portion, and a plurality of tubes extending within said tubular member and connected to the other ends of respective tip portions, each of said tip portions having a channel communicating with the interior of a respective tube whereby ink from said tube may reach the ball-carrying end of the tip portion.

2. In a ball point pen, the combination according to claim 1, wherein each of said tubes is filled with ink of different color.

3. In a ball point pen, the combination according to claim 1 wherein the ball-carrying end of each tip portion is formed with a shoulder abutting a respective inclined side of said end portion, each tube being flexible and of smaller diameter than the respective aperture to permit individual withdrawal of each tip portion and tube from said tubular member.

4. In a ball point pen, the combination according to claim 1, comprising a plug at the end of each tube remote from said tip portion, said plug

being provided with a breather hole to prevent the creation of a vacuum in said tube.

5. In a ball point pen, a tubular member having apertures in an end thereof, a plurality of cartridges mounted in said tubular member each comprising a ball-carrying tip and a tube connected therewith adapted to contain a writing fluid, said cartridges being arranged with the tips in skew relation to each other.

6. In a ball point pen, a tubular member having apertures in an end thereof, a plurality of cartridges mounted in said tubular member each comprising a ball-carrying tip and a tube connected therewith adapted to contain a writing fluid, said cartridges being arranged with the tips in skew relation to each other and with the axes extending in directions whereby the tubes pass each other freely in the tubular member.

7. In a ball point pen, a tubular member having apertures in an end thereof, a plurality of cartridges mounted in said tubular member each comprising a ball-carrying tip and a tube connected therewith adapted to contain a writing fluid, said cartridges being arranged with the tips in skew relation to each other and having flexible tubes passing each other freely in the tubular member.

8. In a ball point pen, a tubular member, an end portion forming a closure for said member, said portion being formed with a plurality of holes extending therein and communicating with the interior of said member, the axes of said holes being skew with respect to one another and to the axis of said member, a plurality of ball-carrying tip portions seated on said end at the respective one of said apertures and having their ball-carrying end projecting from said end portion, and a plurality of tubes extending within said tubular member and connected to the inner ends of respective tip portions, each of said tip portions having a channel communicating with the interior of a respective tube whereby ink from said tube may reach the ball-carrying end of the tip portion.

9. In a ball point pen, the combination according to claim 8, wherein the ball-carrying end of each tip portion is formed with a shoulder abutting a respective side of said end portion, each tube being flexible and of smaller diameter than the respective aperture to permit individual withdrawal of each tip portion and tube from said tubular member.

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