Feb. 15, 1938. C. H. PHILLIPS 2,108,442

WRITING INSTRUMENT

Filed Aug. 19, 1936

Fig I

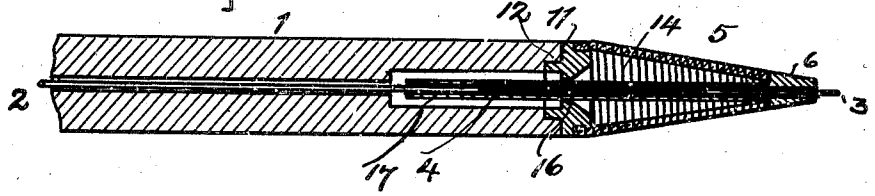


Fig III

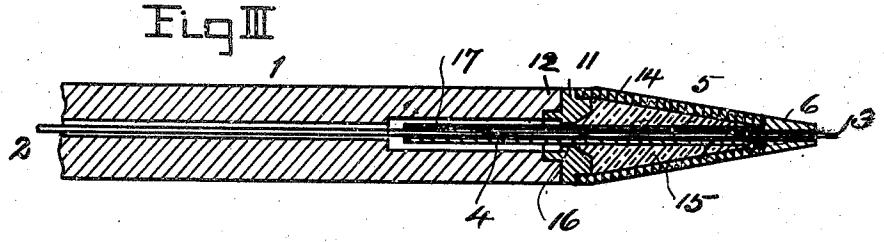


Fig IV

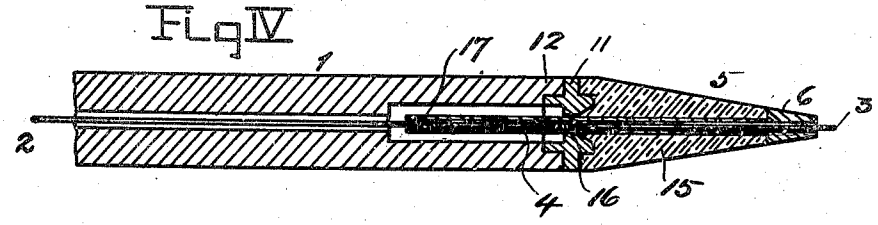
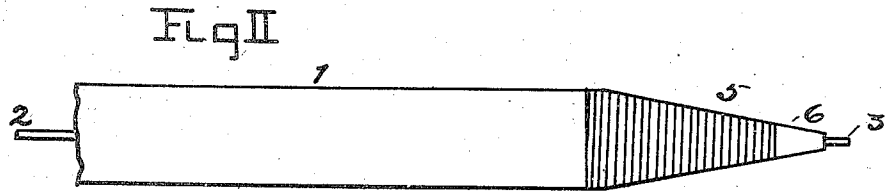


Fig II



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UNITED STATES PATENT OFFICE

2,108,442

WRITING INSTRUMENT

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Application August 19, 1936, Serial No. 96,730

4 Claims. (Cl. 120—9)

My invention relates to writing instruments, and to pencils, and particularly to that form of pencil in which the lead is inserted in the head, and, as it is used, is fed out at the point by mechanical means.

The end of a pencil is comparatively unyielding, and the lead is often broken when a pressure is applied. This is particularly so in the case of the re-fillable pencil, the leads for which are usually slighter and less strong than are those of the solid pencil. The object of my invention is to provide a re-fillable pencil with a flexible or resilient end, which may give slightly to pressure, and without breaking the lead.

In the drawing: Figure I shows the end of a pencil having my flexible point in section; Figures III and IV show ends of pencils having my flexible point in section, but made of slightly different materials. Figure II shows the end of the pencil in elevation. There are several types of mechanical means by which the lead may be fed out at the tip; and for the purpose of illustrating my invention I have shown the end of the stiff feed-wire which is used to push the lead forward in most pencils. This wire is indicated by the numeral 2; and as it is moved forward it pushes the lead 3 through the tube 4 carried in the point 5, and out at the tip 6.

In Figure I the point 5 consists of a base 11 which is fitted into the end 12 of the body 1 of the pencil. To this base I connect the tapered point 5 which may be of any spring material such as rubber or celluloid or metal. When I make it of metal I make it in the form of a spring-wire coil, as shown at 14 in Figures I, II and III.

In Figure III I show the same point 5 and coil 14; but I fill the latter with an elastic or flexible material 15 such as rubber or fabric. In a cheaper pencil I form the point of rubber or fabric without the tapered spring-wire enveloping coil 14.

If the lead 3 were passed into the flexible point 5 without any protection, when the point was flexed the lead would be apt to break. Therefore I pass the lead into and through the tube 4, which is held at the tip 6, and which is also loosely held at the base 11. The aperture at 16 in the base 11 is short; and the tube is not held rigidly in it; but can slide through it and also oscillate a little in it. The posterior end 17 of the tube 4 is not held rigidly in the stem 1 of the pencil, but has a little freedom of movement. The pusher wire 2 which enters the tube 4, and which is flexible, moves with the tube.

If now the lead 3 is fed out beyond the tip 6, and it is then pressed down upon a plane surface, as in the action of writing, the point 5 of the pencil will give to a degree proportional to the pressure applied; and lines of different depth may be made by the lead without as much risk of breaking the lead as with the ordinary stiff point. Another advantage of my flexible point is that it eases the nerve strain on the fingers, which strain often results in a form of temporary cramp.

It is not necessary that the tube 4 may slide in the aperture; for if the tube 4 oscillates on a center at 16 the spring-wire coil 14 will stretch or open and close to accommodate itself to the oscillating of the tube 4.

In Figure III I show my flexible pencil point with the spring-wire coil filled with rubber or fabric; which makes a little stiffer point. In Figure IV I show the same point as in Figure III, but with the spring-wire coil removed; leaving only the flexible rubber or fabric.

I claim:

1. A writing instrument, comprising a hollow stem; a point attached to the stem and having an apertured base and a hollow tip connected by a spring-wire coil; a lead-carrying tube attached to the hollow tip and supported in the aperture in the base.

2. A writing instrument comprising a hollow stem; a point attached to the stem and having an apertured base and a hollow tip connected by a flexible hollow body; a lead-carrying tube attached to the tip and supported in the aperture in the base.

3. A writing instrument: comprising a stem; a point attached to the stem; the said point having an apertured base, a hollow tip, and a resilient body connecting the tip and the apertured base; and a lead-carrying tube held in the hollow tip and supported in the aperture in the base.

4. A writing instrument: comprising a hollow stem; a point attached to the hollow stem; the said point having an apertured base, a hollow tip, and a resilient body connecting the tip with the apertured base; a lead-carrying tube held in the hollow tip and supported in the aperture in the base; and means for feeding the lead through the tube.

CHARLES H. PHILLIPS.