Nov. 10, 1936. A. JEDELE 2,060,081

POINT FOR GOLD PENS AND METHOD OF FORMING THE SAME

Filed Nov. 8, 1934

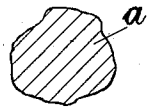


FIG. 1.

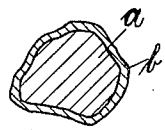


FIG. 2.

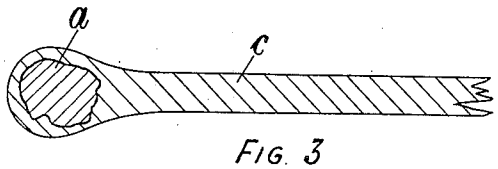


FIG. 3

INVENTOR :

ALFRED JEDELE

BY Lachmann & Lalor

ATTORNEYS.

Patented Nov. 10, 1936 2,060,081

UNITED STATES PATENT OFFICE

2,060,081

POINT FOR GOLD PENS AND METHOD OF FORMING THE SAME

Alfred Jedele, Hanau-on-the-Main, Germany, assignor to W. C. Heraeus Gesellschaft mit beschrankter Haftung, Hanau-on-the-Main, Germany, a company of Germany

Application November 8, 1934, Serial No. 752,186
In Germany November 11, 1933

2 Claims. (Cl. 113—32)

The points of gold pens are fused or welded to the legs of the nib. The hard alloys heretofore used for this purpose contain metals of the platinum group, such as osmium, iridium, ruthenium or the like, and hard base metals, for example, tungsten, molybdenum, tantalum, nickel and cobalt. A considerable number of such alloys are known and are used in the gold pen industry. In the cheap alloys which are mainly used in the art, tungsten is usually the predominating component of the alloy.

The fusing of such points on to gold pens entails considerable difficulties, because the gold of the nib does not combine readily with the alloy containing tungsten, molybdenum, nickel, cobalt or the like. It has been attempted to overcome this difficulty by first coating the points with gold or silver, but a substantial improvement has not been realized in this way. Also it is known in other arts to coat alloys containing tungsten, cobalt, molybdenum and similar metals with nickel before welding or soldering in order thereby to obtain a better union with the base, but also this measure fails in fusing points on to gold pens.

Previous failures are apparently due to the fact that gold and silver form a noble non-oxidizing coating on the alloy of the pen point, but that the action thereof is weakened or rendered nugatory by reason that at a temperature above 1000° C., to which the point of alloy is subjected in the welding operation the coating coalesces with the alloy. With a nickel coating there is no risk of coalescing, but the nickel coating oxidizes to a large extent at the high temperature. This is apparently the reason why a nickel coating, which is very suitable for other welding operations on tungsten alloys, is not suitable for fusing hard metal points on to gold pens.

It has now been found that it is possible to overcome these difficulties in a satisfactory manner by coating the pen point formed of the hard metal alloy containing metals of the platinum group and tungsten, molybdenum, nickel, cobalt or the like with a thin layer of platinum, palladium, rhodium or other metal of the platinum group. By means of such a coating there is obtained a firmer combination between the material of the pen point and the gold of the nib than was previously possible when coating the point with gold, silver, nickel or other similar metal.

The invention is concerned with the method of forming the point of the pen and with the points as such. The application of the coating of a metal of the platinum group to a pen point of hard alloy as aforesaid can be effected in any suitable way; most conveniently, the application is effected galvanically. Of the platinum metals platinum, palladium and rhodium have been found particularly suitable for the purpose in view.

To enhance the adhesion of the coating to a pen point there may be adopted methods usual in the galvanic art or in the plating art, according to which the coated pen point is heated for some time to a high temperature so as to initiate the alloying of the coating with the pen point. The consequence of the strong alloying tendency of the metals in question, this step is, in general, not necessary, as with the heat necessary for fusion a sufficient alloying action is realized.

In the accompanying drawing Fig. 1 is a cross-section showing a granule *a* of hard metal alloy used to form the pen point. Fig. 2 is a corresponding view showing such a granule coated with a thin layer *b* of a metal or metals of the platinum group. Fig. 3 is a section showing the granule embedded in the gold nib *c*.

As will be seen from Fig. 3, at the welding temperature, the gold has fused and enveloped the granule *a*, the coating *b* of which has become alloyed with the granule *a*.

I claim:—

1. A method of forming the point on a gold pen, consisting in coating galvanically with a thin layer of a metal of the platinum group a granule of a hard metal alloy containing at least one metal of the platinum group and a base metal, and welding the coated granule to the gold nib.

2. For forming the point of a gold pen, a granule consisting of a hard alloy containing at least one metal of the platinum group and a base metal, and provided with a thin coating of a metal of the platinum group.

ALFRED JEDELE.