

No. 772,193.

PATENTED OCT. 11, 1904.

DE WITT C. VAN VALER.

PEN.

APPLICATION FILED NOV. 9, 1903.

NO MODEL.

Fig. 1.

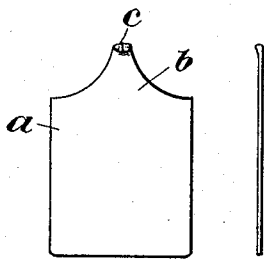


Fig. 2.

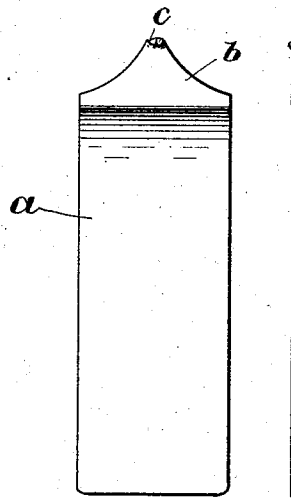


Fig. 3.

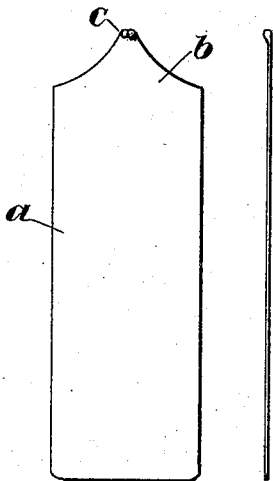
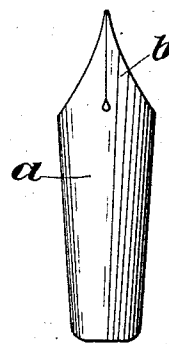


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PEN.

SPECIFICATION forming part of Letters Patent No. 772,193, dated October 11, 1904.

Application filed November 9, 1903. Serial No. 180,300. (No model.)

To all whom it may concern:

Be it known that I, DE WITT C. VAN VALER, a citizen of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, State of New York, have invented an Improvement in Pens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention consists in improvements in pens, being more particularly concerned with gold pens.

The process of manufacturing gold pens heretofore has commonly involved the initial formation of a blank, which is struck out from a thin rolled sheet of alloy metal. After the point has been tipped with iridium that portion of the blank which is to form the shank of the pen is rolled to the requisite thinness by means of rollers especially adapted to the purpose, after which that portion of the blank which is to form the pen-nibs is held against the surface of a specially-formed anvil and the same is subjected to repeated blows from a small hammer, which latter process results, if properly performed, both in giving a certain degree of temper or combined hardness and elasticity to the pen-nibs and in thinning down the metal in that portion of the blank. After the proper degree of temper has been imparted the pen is completed by being died out, shaped, slitted, ground, and polished.

The process of tempering pen-nibs by hammering the blank is attained with numerous disadvantages. Since the tempering must be carried very closely to the pen-point, it is difficult to fulfil this condition, even with the greatest care, without frequent injury to or the total destruction of the iridium point from a careless or misplaced blow.

The operation is comparatively slow and expensive, requiring considerable skill. It is also difficult to so regulate the operation as to obtain results which are uniform for different portions of the same pen, the metal of the blank being left of a varying thickness, temper, and degree of compression and with

an irregular roughened surface. Since it is also impossible to reproduce conditions of manufacture for different pens subjected successively to this operation, the product lacks uniformity and regularity.

I have discovered that by applying pressure to that portion of the blank which it is desired to harden and temper, such as is provided by the uniform compressing action of two compressing surfaces or dies in a hydraulic or other compressing device, I can give to the pen-nibs a greater degree of hardness for the same thickness of metal than by the ordinary practice of hammer-tempering and can therefore produce a pen of superior and more permanent temper from a blank having a lesser thickness of metal and requiring a lesser quantity of gold. By my process the operation is rapid, effective, and less expensive, and by permitting the iridium point to avoid the cooperating compression-surfaces immunity from all injury thereto is certain without thought or care on the part of the workman. The uniform compression to which that portion of the pen to be tempered is subjected leaves a smooth regular surface, while the blank can be brought to any desired degree of compression or any desired gage by regulating the compression or the gage of the die. The resultant pen is provided with a nib portion which in itself is uniformly compressed and of uniform thickness and temper, while uniformity in these respects may be secured through my process for any number of different pens, since the same conditions of manufacture may be easily reproduced. Regularity and similarity in the product may thus be assured.

My invention will be best understood by reference to the following description, when taken in connection with the accompanying drawings, of one specific illustrative embodiment thereof, while its scope will be more particularly pointed out in the appended claims.

Figure 1 represents a pen-blank as first formed and after being tipped with iridium. Fig. 2 represents the same blank after the shank has been rolled out. Fig. 3 represents

the blank shown in Fig. 2 after the compressing and tempering of the nib portion, and Fig. 4 shows the finished and completed pen.

In Fig. 1 I have shown the pen-blank *a* as it is struck out from the sheet metal, the same being shaped to provide the nib portion *b* and subsequently provided with an iridium point *c*, which is soldered or sweated to the pen-tip. The blank shown in Fig. 1 is then rolled between rollers, which are recessed to relieve the nib portion of the blank from pressure, which operation results in rolling the shank into the elongated form shown in Fig. 2 and of a relative thickness, also shown therein, the nib portion still remaining of its original thickness or gage.

After forming the blank shown in Fig. 2 instead of tempering the nib portion *b* by the usual hammering operation I place the blank between two compression-surfaces, such as cooperating surfaces of the two members of a die, which are adapted to engage any desired area of the nib portion of the blank. The pen-tip with its iridium point may lie outside of the area of compression, and the compression-surface may be appropriately grooved or recessed, if desired, for this purpose, whereby the iridium point is relieved of all pressure during the compression operation. The blank having been placed in position between the compression-surfaces, the same is caused to be compressed by any suitable means, preferably by hydraulic pressure, though my invention is not limited to any particular method in this respect. The extent or duration of the compressing operation may be determined either by the attainment of a certain pressure or by the compression of the nib portion to a certain predetermined gage, automatic means being employed, if desired, to relieve the pressure when the desired point has been reached. The resultant blank, as shown in Fig. 3, having a uniformly compressed and tempered nib portion, is finally finished into the complete form shown in Fig. 4.

This process of pen-tempering enables me to attain in practice uniform results, since by stopping the compression automatically or

otherwise, either when a predetermined pressure or when a predetermined gage of pen-blank has been attained, any number of pens may be subjected to precisely the same tempering conditions. In practice I have found that the increased hardness which may be given to the pen-nibs by this method and the correspondingly thin pen-blank which may be employed by reason of the increased hardness results in great saving of metal, which is of considerable practical importance when my invention is applied to gold pens, while experience has also shown that pens tempered by my process have greater permanency of temper.

It will be obvious that my invention, which is here described, for illustrative purposes only, as embodied in and applied to but one specific form of pen, is capable of wide modification without departing from the true spirit thereof.

I claim—

1. A new article of manufacture consisting of a pen provided with tempered nibs having a uniform degree of compression.
2. A new article of manufacture consisting of a gold pen provided with tempered nibs having a uniform degree of compression.
3. A new article of manufacture consisting of a gold pen having a tempered nib portion compressed to a definite gage.
4. A new article of manufacture consisting of a gold pen provided with a tempered nib portion compressed to a predetermined degree.
5. A new article of manufacture consisting of a gold pen provided with a tempered nib portion having a uniform degree of temper.
6. A new article of manufacture consisting of a gold pen having a uniformly and simultaneously tempered nib portion.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DE WITT C. VAN VALER.

Witnesses:

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FRANK W. TEALE.