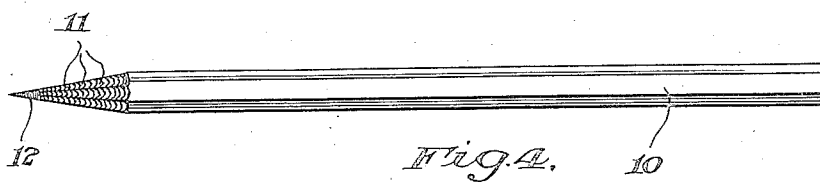
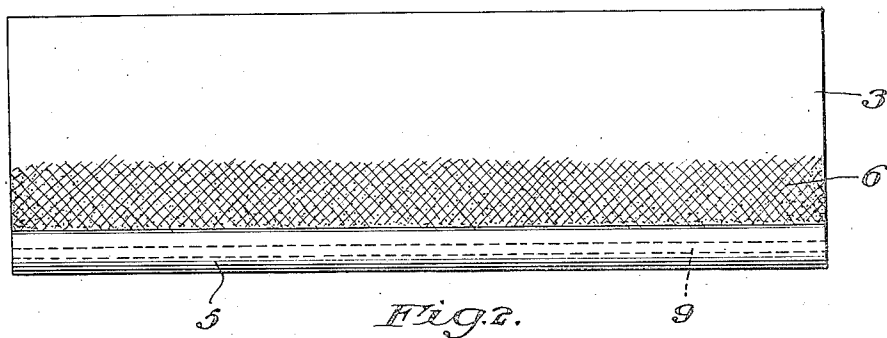
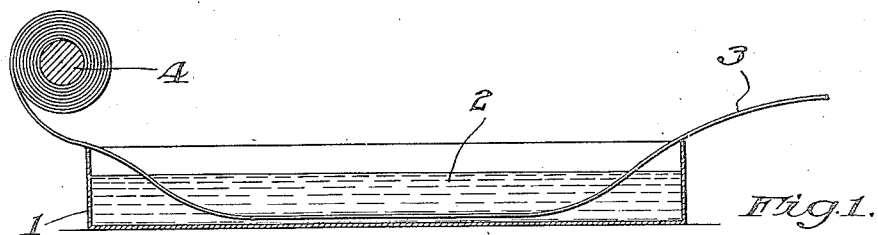


C. A. SMITH.
PENCIL AND PROCESS FOR MAKING THE SAME.
APPLICATION FILED DEC. 15, 1916.

1,222,152.

Patented Apr. 10, 1917.



Inventor:
Charles A. Smith
By Charles N. Butler
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES A. SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO BLAISDELL PAPER PENCIL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PENCIL AND PROCESS FOR MAKING THE SAME.

1,222,152.

Specification of Letters Patent.

Patented Apr. 10, 1917.

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To all whom it may concern:

Be it known that I, CHARLES A. SMITH, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improved Pencil and Process for Making the Same, of which the following is a specification.

My improved pencil comprises a core, 10 such as crayon, graphite or graphite composition, incased in a body composed of substantially concentric layers or coils of fibrous material, such as wood fiber paper, connected together by an adhesive so as to 15 form a solid holder for the marking material, the body or holder being of such character that it can be pared or turned by a knife to sharpen or point the pencil.

The pencil is made by my improved 20 process, in which, by the preferred practice, a sheet of wood fiber paper is treated with an acid or acidulated solution, as by passing it through a dilute sulfuric acid bath or water treated with a small amount of sulfuric acid. The paper, after it has been 25 thus treated, is dried or partially dried and then wound upon the graphite core, with an adhesive such as dextrin applied between the consecutive layers of the roll.

30 The pencils may be subjected to pressure while their bodies are still in formative condition, prior to the hardening of the adhesive material, and may thus be pressed to a desired form, such as a hexagon in cross-section.

The finally formed pencils are dried either artificially or by natural seasoning, when they are ready for the market.

40 The treatment of the paper with the acid solution is for the purpose of weakening or breaking down the fiber more or less so that the body formed therefrom can be readily cut smoothly by a knife or sharpening tool.

45 The pencil thus formed is inexpensive and not liable to the objectionable characteristics of pencils having sectional wood bodies, formed by gluing wood parts upon a graphite core, such wood parts having a 50 common tendency to split. My improved pencil is, moreover, advantageous in view of the difficulty of obtaining at a moderate cost cedar or other woods suitable for making pencil bodies or cases.

The accompanying drawings illustrate 55 steps in the process and the product of my invention.

Figure 1 illustrates the treatment of the paper with a dilute acid; Fig. 2 illustrates an intermediate stage in the operation of 60 rolling the body; Fig. 3 is an elevation of a cylindrical form of the finished product; and Fig. 4 illustrates a hexagonal form of the finished product.

In Fig. 1 is shown any suitable vessel 1 65 containing an acidulated bath or body of liquid 2 through which is drawn a sheet of paper 3 from a roll 4, whereby the paper is partially disintegrated or decomposed.

In Fig. 2 is shown a cylindrical roll 5 70 which is being formed by winding the sheet 3, to which is applied an adhesive 6 in process of winding so that the successive coils or laminations are caused to adhere together.

In Fig. 3 is shown a finished and sharpened pencil having a cylindrical body 7 75 composed of the adhering coils or laminations 8 and containing the graphite core 9, the body being of such character that it can be readily shaved or pared to point the pencil.

In Fig. 4 is shown a finished pencil having a body 10 of hexagonal cross-section, 80 formed by pressure prior to the drying out of the adhesive, and composed of the concentric coils or laminations 11 wound on the graphite core 12.

The product thus produced has a core and a case therefor both of which are symmetri- 85 cal with respect to the same axis or center, so that in turning a point the unsymmetrical and objectionable result is avoided which frequently obtains in turning points on pencils having wood cases which are frequently not symmetrical, with respect to 95 the axis of the lead or core. Further, the rolled paper body of my improved pencil cuts with a regularity and smoothness not found in pencils having wood bodies in 100 which the grain, hardness and other qualities vary, frequently in the same pencil.

Having described my invention, I claim:

1. A pencil having a body composed of adhering laminated coils of partially de- 105 composed sheeted material.

2. A pencil having a body composed of sheeted wood fiber paper having the fibers

partially decomposed and wound upon a core, the coils of the paper being fixed together by an adhesive material applied between them so as to form a solid body.

- 5 3. A pencil having a body composed of wood fiber paper having the fiber partially decomposed and adapted to be cut, said body comprising laminations permanently fixed together.
- 10 4. The process of making pencils which consists in treating a sheet of fibrous material with a substance capable of breaking down the fiber more or less and winding the sheet of treated material upon a core so
- 15 as to form a body incasing the same.
5. The process of making pencils which consists in treating a sheet of wood fiber paper with an acidulated solution adapted

to effect a condition whereby the paper is more readily cut, winding the sheet of treated paper upon a core so as to form a body incasing the same, and applying an adhesive to the sheet in process of winding so as to cause the wound coils to adhere together.

- 25 6. The process of making pencils which consists in treating sheeted wood fiber with an acidulated sulfuric acid solution effecting a condition whereby the paper is more readily cut, drying or partially drying the treated paper, applying an adhesive thereto, and winding the paper with the adhesive thereon upon a core.
- 30

In testimony whereof I have hereunto set my name this 11th day of December, 1916.

35

CHARLES A. SMITH.