Aug. 1, 1933. W. DANEKE 1,920,361

PENCIL AND METHOD OF FINISHING SAME

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Fig. 1.



Fig. 2.

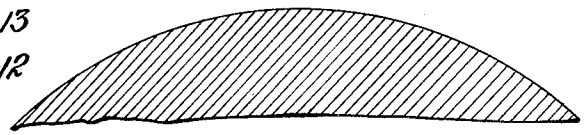


Fig. 3.

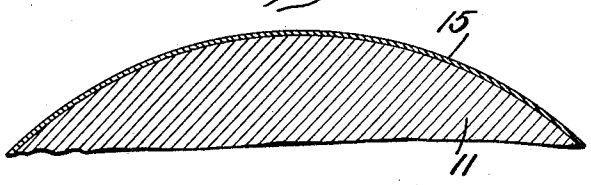


Fig. 4.

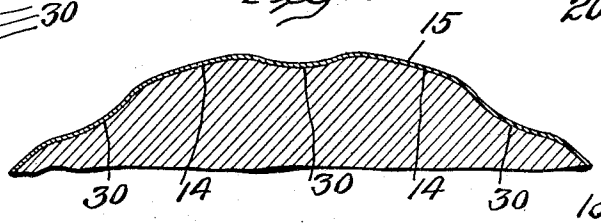


Fig. 5.

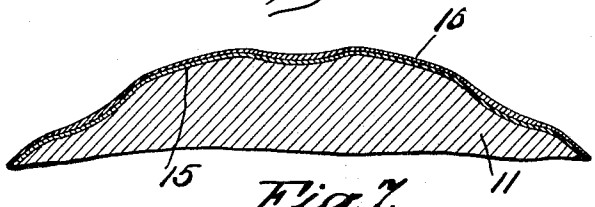


Fig. 6.

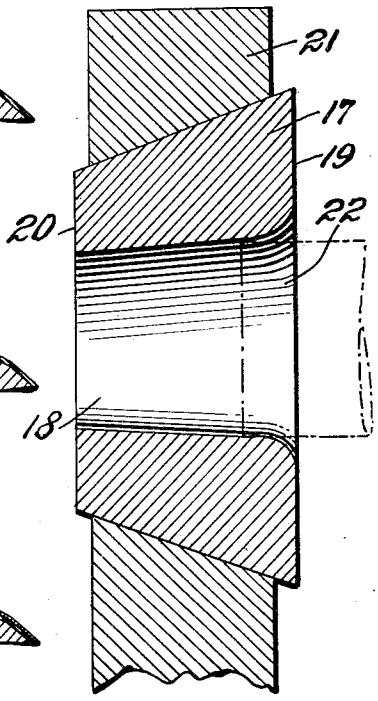
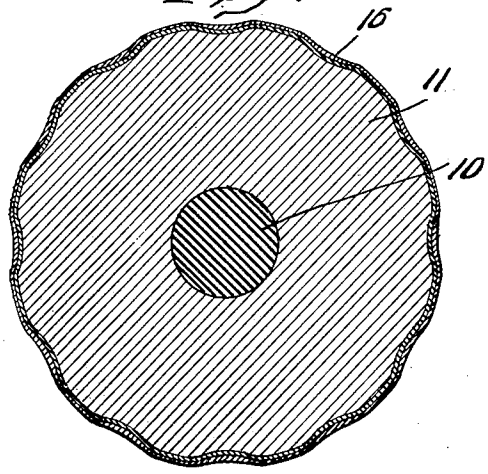


Fig. 7.



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Fig. 8.

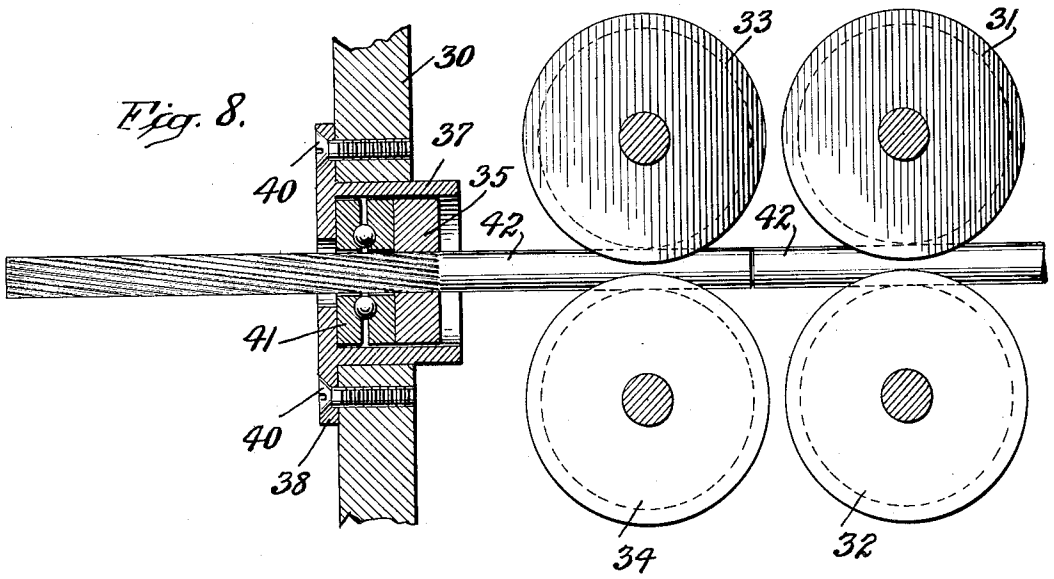


Fig. 9.

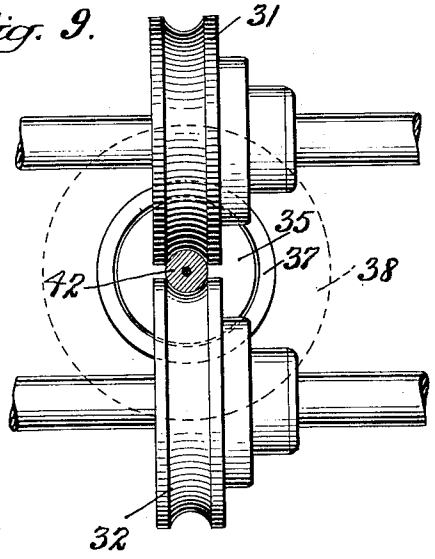


Fig. 10.

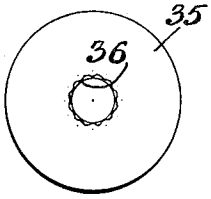
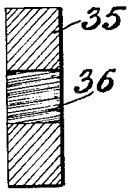


Fig. 11.



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UNITED STATES PATENT OFFICE

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PENCIL AND METHOD OF FINISHING SAME

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Application May 18, 1932. Serial No. 611,971.

7 Claims. (Cl. 41—38.)

The invention relates to an improvement in the art of finishing or coating pencils and the like. Each pencil to be finished or coated comprises a marking material, such as graphite or crayon, enclosed in an elongated sheath, usually round or polygonal in cross-section, composed of suitable material, such as wood, paper or composition. The periphery of the sheath or body portion is commonly finished or coated with paint or other coloring material, preferably in a plurality of coats of such character as to provide a glossy surface. The object of this invention is to provide an improved method of finishing a pencil of this character, to give it an attractive and distinctive appearance due to the manner in which the peripheral surface of the pencil sheath is operated upon, and to the color effects applied thereto. To this end the invention resides in the improved method of finishing pencils and the like hereinafter fully described and particularly pointed out in the appended claims.

In the accompanying drawings illustrating a pencil produced by carrying out the invention in a preferred manner and the various steps by which the pencil is finished, Fig. 1 is a side elevation of an improved pencil produced according to the method of the invention; Figs. 2, 3, 4 and 5 are fragmentary cross-sections through the pencil on a greatly enlarged scale, Fig. 2 showing the periphery of the body portion of the pencil before the application of any paint or finishing material thereto, Fig. 3 showing the pencil with a primary coat or layer of finishing material, Fig. 4 showing the pencil after knurling following the application of the primary coat, and Fig. 5 showing the pencil with two coats of finishing material applied thereto; Fig. 6 is a longitudinal section on an enlarged scale of a device through which the pencil body is passed and by which the material of the secondary coat may be variably distributed before this coat has had time to dry or harden; Fig. 7 is a cross-section on an enlarged scale showing the finished pencil; Fig. 8 is a vertical sectional view through the die for knurling the pencils, and the feeding rollers, showing the feeding rollers forcing a pencil through the die; Fig. 9 is a view taken at right angles to that of Fig. 8; Fig. 10 is a face view of the die, and Fig. 11 is a sectional view through the die.

The improved pencil as illustrated in Figs. 1 and 7 is in general of usual form and construction, and consists of a centrally located "lead" or other marking material 10 enclosed in a sheath or body portion 11 of wood or composition. On one end of the pencil is mounted a ferrule 12 for holding an eraser 13. The finished pencil is substantially round in cross-section and its periphery is knurled, preferably into a series of substantially parallel, longitudinally extending, spirally arranged divisions or rounded ridges 14 with shallow grooves or depressions 30 between them. The surface of the body portion of the pencil is provided with an inner coat or layer 15 of paint or finishing material of substantially uniform thickness and an outer coat 16 of paint or other like finishing material, preferably of different color from the inner coat, which is relatively thick in the grooves 30 and relatively thin over the ridges 14 so as to allow the inner coat to show therethrough.

According to the preferred way of carrying out the improved method of finishing a pencil or the like, the pencil body in round form, as shown in Fig. 2, is coated with paint or other finishing material to form the inner coat 14, as shown in Fig. 3, preferably presenting a white background for an outer coat to be applied later. Then, after the inner coat has hardened sufficiently, the surface of the pencil body is depressed in portions or knurled, preferably by pressure, to provide the shallow depressions 30 between the ridges 14, the tops of the depressions being substantially in the same positions as the corresponding parts of the original surface, as shown in Fig. 4. In knurling the pencil sheath to form the spirally extending rounded ridges 14, mechanism is used which so operates to knurl the sheath without cracking, removing or breaking through the paint layer 15.

The means for knurling the pencil is disclosed in detail in Figs. 8 to 11 inclusive. The pencils 42 to be knurled are fed by any suitable conveying means to a pair of feed rollers 31 and 32, by which they are successively fed in end-to-end relationship between another pair of rollers 33 and 34 which forces them through the die indicated at 35. The upper roller of each pair, that is, the rollers 31 and 33, are of rubber while the lower rollers 32 and 34 are of metal. The die 35 has an internal spiral fluting 36 and is located within a boss 37 having a lateral flange 38 which is secured to a supporting plate 39 by the screws 40. The die is in contact with a ball thrust bearing 41 which allows it to turn with a minimum of resistance. As the pencils 42 in round form are fed to the die as indicated in Fig. 8, the die rotates and produces the spiral knurl-

ing in the body of the pencil as shown in Figs. 1 and 8. The outer or secondary paint coat 16 is then applied over the whole peripheral surface of the pencil body including the grooves 30 therein and before the coating dries a device 17 for varying the thickness of the applied layer 16 is used, the same leaving thick parts of the paint coat 16 in the depressions and thinner parts over the ridges, through which the white background is seen to a sufficient extent to provide a contrast between the color at the tops of the ridges and that in the depressions or grooves. Such a contrast may be conveniently obtained by the use of a dark colored outer coat. This will provide ribs or lines of the secondary coat in the depressions having substantially the coloring of the dark colored second-coat material and sections of coloring on the tops of the ridges which are lighter, due to the white background which shows therethrough. As an example of coloring materials which may be used, the inner coat or layer 15 may be a cellulose white enamel while the top coat 16 can be composed of shellac stained with aniline dye.

The device for causing a variable distribution of the secondary coating on the surface of the sheath consists of a member 17 of resilient material such as rubber, having a hole 18 of round cross-section, that is, complementary to the cross-section of the pencil before it was knurled. The member 17 is conveniently in the form of a frustum of a cone with parallel faces 19 and 20 and is adapted to be mounted in a correspondingly shaped hole in a support 21. The round hole 18 through the member 17 is provided, as illustrated in Fig. 6, with a flaring mouth 22 in the face 19 so as to facilitate the entrance of the pencil into the hole 18.

To vary the thickness of the applied second coat or layer of paint 16 on the pencil sheath, one end of the pencil is inserted into the hole 18 at its flaring mouth and the whole pencil is passed through the hole by a force acting to move it axially. The hole 18 is of such cross-section that, when the pencil is passed therethrough the parts of the layer 16 on the ridges 14 are thinned out by the contact of the sides of the opening 18. Obviously, the material of the outer or secondary coating will be thicker in the depressions than on the ridges as shown in Figs. 5 and 7. The result of this variation in thickness of the outer coat 16 is that the inner coat 15 will to some extent show through the outer coat on the tops of the ridges while at the depressions the inner coat will not show through or will show through to a lesser extent, thus producing a variation in colors over the surface of the pencil and attractive striped color effects in general.

Having thus described the invention, what I claim as new is:—

1. The method of finishing a pencil of the character described which comprises applying a primary coat of coloring material thereto, knurling the pencil to produce shallow depressions without removing the primary coat, applying a second coat of coloring material, and varying the thickness of the second coat to leave thick portions thereof in the depressions and relatively thin portions between said depressions.

2. The method of finishing a pencil of the character described which comprises applying a primary coat of coloring material thereto, knurling the pencil to produce shallow depressions and ridges therebetween without removing the material of the primary coat, applying a second coat of a color different from that of the primary coat and before the secondary coat dries passing the pencil axially through a resilient member provided with a hole having a cross-section complementary to that possessed by the pencil before the pencil was knurled.

3. The method of finishing a round pencil which comprises applying a primary coat of coloring material thereto, knurling the pencil to produce parallel longitudinally extending helical depressions with ridges therebetween without removing the material of the primary coat, applying a secondary coat of another color, and causing a variable distribution of the material of the secondary coat by passing the pencil through a round hole in a resilient member.

4. The method of finishing a pencil which comprises applying a primary coat of coloring material thereto, knurling the pencil by pressure after drying the primary coat to produce parallel longitudinally extending depressions with ridges therebetween without removing the material of the primary coat, applying a secondary coat of material of different color from the first coat, and before the secondary coat dries removing surplus portions thereof by passing it through a hole in a resilient member, said hole having a cross-section complementary to that possessed by the pencil before it was knurled.

5. The method of producing color effects on the body of an article such as a pencil, having a primary coating in one color, which comprises forming a plurality of shallow depressions at the lateral surface thereof without removing the primary coating, applying a secondary coating in another color, and then passing the article through a member of cross-section complementary to the pencil before it was knurled, to remove surplus material of the second coating.

6. A pencil of the character described, comprising an elongated body portion provided on its periphery with longitudinally-extending spiral rounded ridges with depressions located between them, a primary coating of finishing material entirely covering the periphery of the pencil, and a secondary coating of finishing material disposed over the primary coating, said secondary coating partially filling the depressions between the ridges and having thinner layer portions covering the ridges so that the primary coating is visible through the secondary coating on the ridges.

7. A pencil of the character described comprising an elongated body portion provided on its periphery with longitudinally-extending rounded ridges with depressions located between them, a primary coating of substantially uniform thickness of finishing material entirely covering the periphery of the pencil, and a secondary coating of variable thickness of finishing material disposed over the primary coating, the thicker portions of said secondary coating being located in the depressions and the thinner portions thereof being located on the ridges.

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