G. B. BERGEN.

AUTOMATIC PENCIL.

APPLICATION FILED JAN. 3, 1918.

1,319,039. Patented Oct. 21, 1919.

Fig. 1.



Fig. 2.

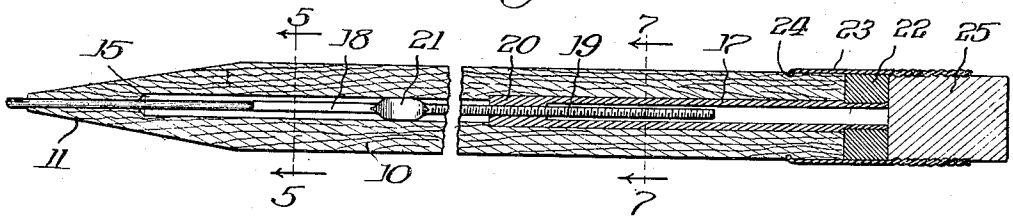


Fig. 3.

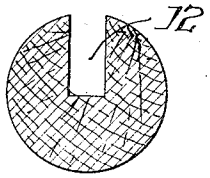


Fig. 4.

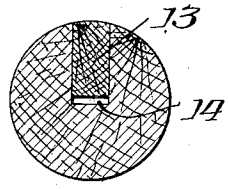


Fig. 5.

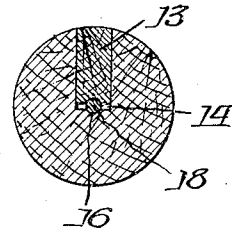


Fig. 6.

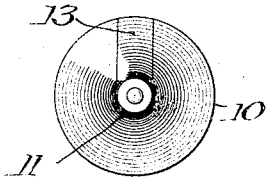
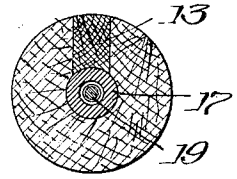


Fig. 7.



Witness:
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UNITED STATES PATENT OFFICE.

GEORGE B. BERGEN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KEERAN PRODUCTS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

AUTOMATIC PENCIL.

1,319,039. Specification of Letters Patent. Patented Oct. 21, 1919.

Application filed January 3, 1918. Serial No. 210,108.

To all whom it may concern:

Be it known that I, GEORGE B. BERGEN, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Pencils, of which the following is a specification.

My invention relates to pencils and particularly to an automatic pencil having novel features hereinafter described.

One of the principal objects of my invention is to provide a pencil which will simulate the common wood lead pencil, both as to weight and appearance and which shall, in addition, be provided with means for advancing and renewing the lead as required.

One of the fundamental objections to the use of the automatic pencil as commonly manufactured is the weight thereof, all of such pencils known to me being several times heavier than the common lead pencil. This results in greater inconvenience in using the same and in greater wear to the pockets of the users. Furthermore, as the surface of the metal pencil is usually shiny and slippery, it is difficult to secure a firm grip thereon and the reflections therefrom have a disagreeable effect on the eyes when used in strong light.

The purpose of the herein described structure is to provide a pencil of such extremely simple character that it may be manufactured and sold at a price only slightly greater than that of the common solid pencils. In order to effect this result extreme simplicity of construction is necessary. To this end but two moving parts are provided, consisting of a longitudinally fixed sleeve equipped with internal threads and a longitudinally movable non-rotatable plunger for advancing the lead.

Another important advantage in the construction which I propose is in that the lead is not loose in the point as it is frictionally held by the wood at the point. In fact, in this construction no means are provided for connecting the lead to the plunger. In order further to eliminate parts and economize in cost of construction, the parts are permanently joined during the process of manufacture and the leads for refilling are supplied through the exit opening. A pencil constructed in this manner will be of substantially the weight of the common lead pencil and the cost of production will be such as to enable its sale at an amount only slightly greater than that of such pencils.

The invention will be more readily understood by reference to the accompanying drawings, wherein,

Figure 1 is an exterior view substantially full size, of a pencil such as contemplated by me;

Fig. 2 is a much enlarged longitudinal section therethrough;

Fig. 3 is a cross section showing the first step in the operation of forming the body;

Fig. 4 shows the next step;

Fig. 5 is a section taken on the line 5—5 of Fig. 2;

Fig. 6 is an end view, and,

Fig. 7 is a section on the line 7—7 of Fig. 2.

In the drawings it will be seen that the pencil comprises a body portion 10, having at its lower end a tapering point 11, the pencil being shaped to simulate a sharpened lead pencil of the common form. In the process of manufacture a longitudinal kerf or groove 12, is formed from end to end of the pencil. The groove is then filled by means of a strip 13, the strip at one point terminating short of the lower end of the groove, thereby leaving a flat, rectangular space 14, for a purpose hereinafter described. At the extreme outer end, however, the groove is completely filled as the flat space terminates at the point 15.

An axial aperture 16, of a diameter considerably greater than the width of the space 14, is provided, this aperture extending longitudinally of the body to a point near the opposite or upper end where it is enlarged to accommodate the rotatable sleeve 17, best shown in Figs. 2 and 7. The opening 16, is of substantially the size of the leads to be employed and these leads will be securely held therein by friction. A plunger or lead advancing member 18, is provided and consists of a wire of substantially the size of the lead. One portion 19, of the wire is threaded and engages with threads 20, formed interiorly of the rotatable sleeve 17. A portion 21, of the plunger is flattened to provide a fin which fits within the flattened space 14, and prevents rotation of the plunger. The sleeve 17 is rigidly connected with a head 22, to which is secured a rotatable collar 23, whose lower end is crimped into engagement with a groove

formed in the wood composing the body, as at 24. Within the collar 23 provision is made for the accommodation of a rubber eraser 25.

In the act of assembling, the plunger is screwed into the threads 20, formed in the sleeve 17, and these parts, together with head 22, and the collar 23, are fitted into the pencil body after which the edge 24, is crimped, thus securely binding the parts together. Leads may then be inserted through the aperture in the pointed end of the pencil. To eject the lead it is only necessary to rotate the head or collar 23.

The principal point of novelty consists in the simplicity of the construction and the appended claims should be construed with this in view. Modifications will undoubtedly suggest themselves to those skilled in the art and I do not wish to be limited except as indicated in the claims.

I claim:

1. In a pencil, the combination of a wood casing having a radial kerf therein, means for filling said kerf to preserve the contour of the periphery of the casing, the filler being of such size as to leave a narrow longitudinally extending space at the axis of the pencil, a circular, longitudinally extending axial aperture intersecting said narrow space and being of considerably greater diameter than the width of the narrow space, a plunger for advancing a lead held in said circular aperture and having means coöperating with said narrow space for preventing the turning of the plunger, and means for advancing said plunger, substantially as described.

2. In a pencil, the combination of a fiber body having a longitudinal groove therein extending to the axis of the body, a filler for said groove, said filler terminating short of the inner end of the groove whereby a flat space is left, said space extending toward the pointed end of the body and terminating short of the end thereof, a circular axial opening in the pointed end, the diameter of the opening exceeding the width of the flat space, a plunger substantially the size of the circular opening, said plunger being provided with means engaging the flat space for preventing rotation of the plunger, and means for advancing and retracting the plunger, substantially as described.

3. In a pencil, the combination of a body having an axial opening, the opening throughout substantially one-half of the length of the pencil being of substantially the diameter of the lead employed whereby the lead is guided throughout its entire length, a head rotatably secured to the body, an internally threaded sleeve arranged to occupy a portion of the axial opening and having connection with the head whereby it may rotate therewith, a threaded plunger of substantially the exact diameter of the leads employed said plunger being adapted to engage with the sleeve and to travel within the axial opening, the portion of the axial opening which acts as a guide for the lead being provided with a groove, and a projection on the plunger adapted to engage with the groove, whereby the plunger is positively prevented from rotation within the opening, substantially as described.

4. In a pencil, the combination of a body having an axial opening, the opening throughout the lower portion of the pencil being substantially the same diameter as the lead employed for a distance approximating the length of the lead whereby the lead is guided throughout its entire length, a head rotatably secured to the body, an internally threaded sleeve having an internal diameter approximately the same as the diameter of the lead, arranged within the axial opening in the upper portion of the pencil and having connection with the head whereby it may rotate therewith, the axial opening being of enlarged diameter in the portion occupied by the sleeve for its accommodation, a threaded plunger of substantially the diameter of the leads employed adapted to engage with the sleeve and to travel through the lower portion of the pencil within the axial opening therein, the portion of the axial opening which acts as a guide for the lead being provided with a groove, and a projection on the plunger adapted to engage with the groove whereby the plunger is positively prevented from rotation within the opening, substantially as described.

5. In a pencil, the combination with a body within which is an axial opening, of an internally threaded sleeve arranged rotatably within one end portion of the opening, means exteriorly of the pencil body for rotating the sleeve therewithin, a threaded plunger adapted to enter the sleeve and travel longitudinally through the body within its axial opening the diameter whereof in the end portion not occupied by the sleeve is substantially equal to that of the plunger whereby it serves as a guide therefor and for a lead under propulsion in advance thereof, and means formed on the plunger adapted to coöperate with other means within the axial opening in a portion thereof not occupied by the sleeve for positively preventing rotation of the plunger within the opening, substantially as described.

6. In a pencil, the combination of a body within which is an axial opening, an internally threaded sleeve arranged within the opening, a plunger having a threaded body arranged for entry into the sleeve whereby the threads on the plunger body coöperate

directly with those in the sleeve, means for engaging with a lead for practically its entire length to guide the same in its travel through the pencil, means carried by the plunger exteriorly of the sleeve and other means coöperating therewith formed within the body exteriorly of the sleeve for positively preventing rotation of the plunger relative to the body, and means exteriorly of the body for producing relative rotation between the sleeve and plunger whereby the latter is propelled longitudinally of the pencil to advance the lead ahead of itself, substantially as described.

7. In a pencil, the combination with a body within which is an axial opening, of an internally threaded sleeve arranged within the opening, a plunger having a threaded body arranged for entry into the sleeve whereby the threads on the plunger body coöperate directly with those in the sleeve, means carried by the plunger exteriorly of the sleeve and other means coöperating therewith formed within the body exteriorly of the sleeve for positively preventing rotation of the plunger relative to the body, and means exteriorly of the body for producing relative rotation between the sleeve and plunger whereby the latter is propelled longitudinally of the pencil, substantially as described.

Signed at Chicago, Ill., this 10th day of December, 1917.

GEO. B. BERGEN.

Witness:

T. D. BUTLER.