No. 609,909. Patented Aug. 30, 1898.

H. H. SEAMAN.

PENCIL.

(Application filed June 14, 1897.)

(No Model.)

Fig. 1,

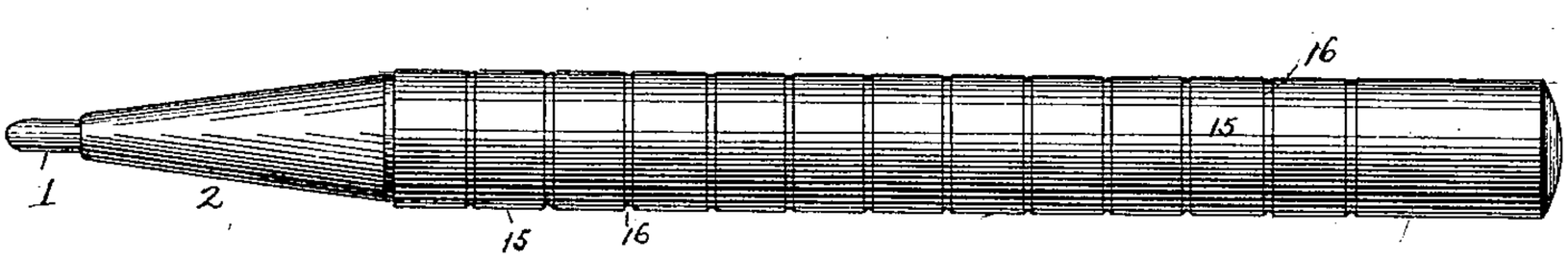

Fig. 2,

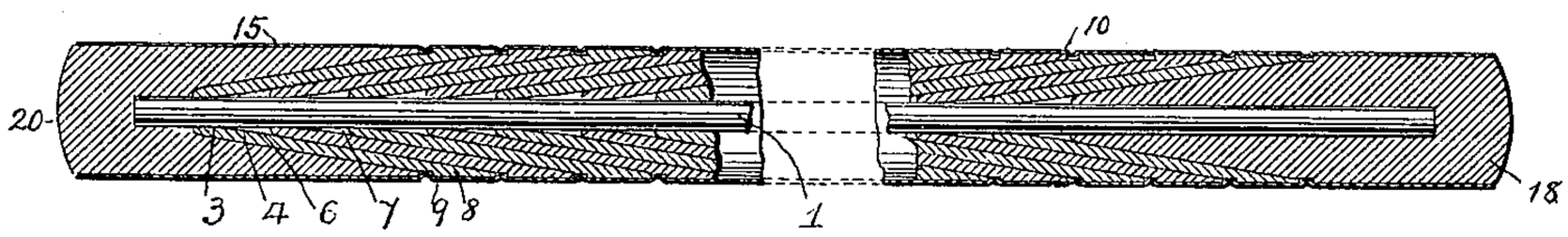

Fig. 3,

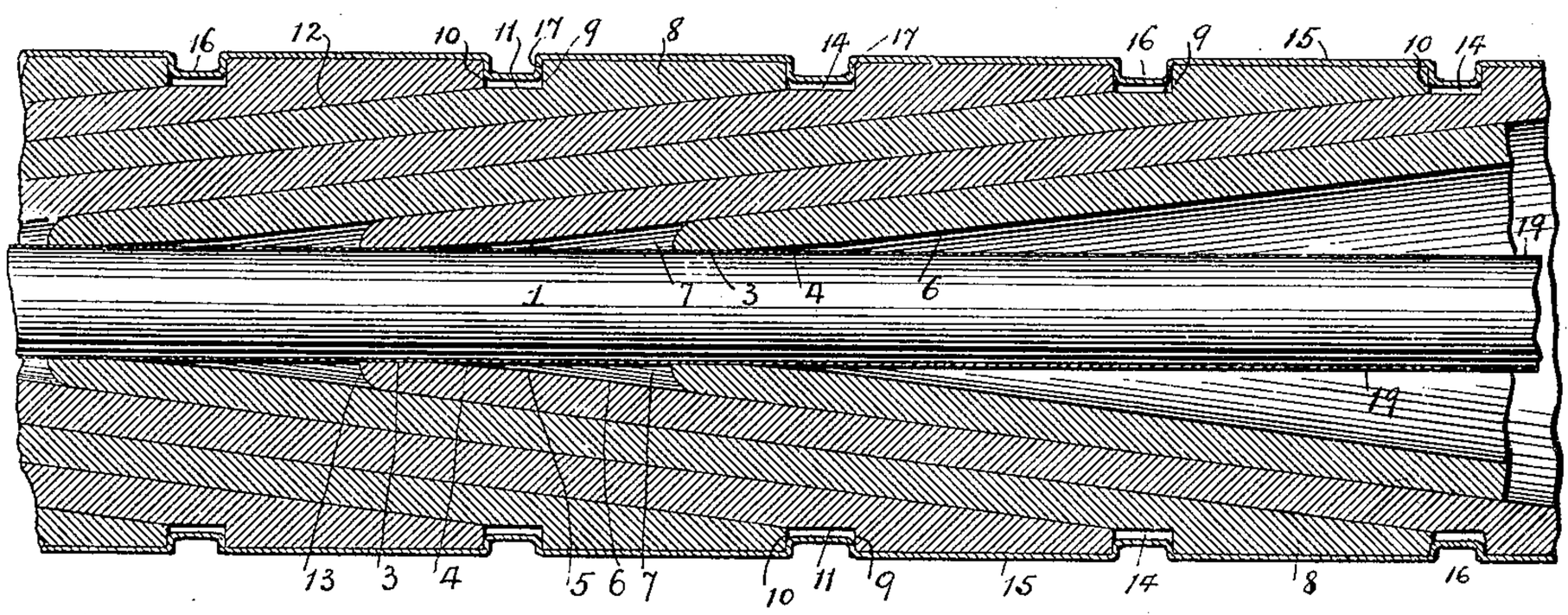

Fig. 4,

Fig. 5,

Fig. 6,

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HERBERT H. SEAMAN, OF NEW YORK, N. Y., ASSIGNOR TO THE STYLUS PENCIL COMPANY, OF SAME PLACE.

PENCIL.

SPECIFICATION forming part of Letters Patent No. 609,909, dated August 30, 1898.

Application filed June 14, 1897. Serial No. 640,649. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. SEAMAN, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

My invention relates more particularly to that class of pencils shown and described in Letters Patent granted to me February 25, 1896, No. 555,341; and the main object of my present invention is to improve the type of pencil therein set forth, especially in respect to the construction of the conical members or sections, the mode of applying the sheath or wrapper, and the mode of holding the lead to and within the cones.

My invention consists in the various features of construction and combinations of parts hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is an enlarged side elevation of a pencil, showing my improvements. Fig. 2 is a longitudinal central section thereof. Fig. 3 is a still further enlarged longitudinal section of a pencil embodying my improvements. Fig. 4 is a cross-section of a pencil, showing a wrapper whose edges overlap. Fig. 5 is a similar view showing a wrapper whose edges abut, and Fig. 6 is a side elevation of a pencil provided with a spiral wrapper.

In the various views the same part will be found designated by the same numeral of reference.

1 designates the continuous stick of lead, crayon, or the like, and 2 2 the series of conical devices, sections, or members, which are all of the same size, shape, and construction and are arranged to surround and support the lead and nest together. Each section is made hollow to encompass the lead and to receive its adjacent following section. The forward or smaller end of each conical section or member is formed interiorly with a cylindrical or parallel-sided bore 3 for only a trifle of the length of the member, and this cylindrical portion 3 is parallel with the axis of the lead which it surrounds and takes a bearing on. From the rear end of this cylindrical portion 3 the interior of the cone is very slightly beveled, as at 4, for a short distance, about twice the length of the cylindrical portion 3, so that the interior surface 4 of the cone recedes gradually from the surface of the lead. From the inner end of this slightly-tapered portion 4 or beginning at the point 5 the interior of the member is formed at a greater angle or pitch and recedes more quickly from the lead. This last-mentioned tapering portion is indicated by the numeral 6 and continues uniformly to the end or base of the member. Within this tapering portion 6 is fitted the next succeeding conical member, which, however, does not entirely fill such tapering portion, there being left a space 7 forward of the inner extremity of the said succeeding conical member.

At the base end of the conical member is formed a portion or collar 8, whose exterior surface is cylindrical, and at the forward end of such collar is formed a shoulder 9, the rearmost end of the collar forming a like shoulder 10.

Immediately in front of the forward shoulder 9 is a cylindrical portion 11, which is quite narrow, and from the forward end of this cylindrical portion the exterior of the conical member is tapered, as at 12, uniformly and continuously downward and inward toward the lead, parallel with the taper 6, until the tip of the cone is reached, at which portion the outer surface of the cone is rounded, as seen at 13. The interior taper 6 is greater in length than the exterior taper 12, thus producing the space 7.

In nesting the conical members together the rear edge 10 of each cone comes adjacent to the forward end of the cylindrical portion 11, and there is formed by the shoulder 9, the end 10, and the cylindrical portion 11 a three-sided circular groove or depression 14 to permit of the indentation of the wrapper 15, as shown at 16. The wrapper, sheath, or cover is preferably made of paper, but may be made of any suitable material or substance, and the said wrapper may be pasted around a series of nested cones cylindrically, as in my former patent and as indicated at Figs. 1, 2, 3, and 4 of the present application, or it may be placed around said cones in a spiral manner,

as shown at Fig. 6, this wrapper being designated by the numeral 15ª. If the cover be cut of a length equal to that of the pencil and of a width slightly in excess of the distance around the pencil, the edges of the cover will overlap, as at Fig. 4; but the cover may be cut of a width which will just go around the pencil and so that the edges will abut or come in contact or meet longitudinally. In the use of the spiral cover shown at Fig. 6 the material is cut of a length greatly in excess of that of the pencil and comparatively narrow and is wrapped around the cones in convolutions, as illustrated, and in the application of this wrapper the edges may either be made to overlap, as at Fig. 4, or to abut, as at Fig. 5.

It will be understood, of course, that the wrapper or cover is glued or otherwise secured to the conical devices, and that the latter are thereby maintained firmly in their nested condition upon the centrally-disposed lead.

At the time the wrapper is put on or immediately thereafter, while the glue or paste is fresh, the portions 16 of the wrapper coincident with the depressions 14, formed by the cones, are pressed or forced into said depressions, so as to form or produce on the exterior surface of the pencil a series of parallel circular indentations in the wrapper or cover, as shown in the several views. The main object of this series of circular indentations is to disclose where the wrapper is to be cut or severed when the foremost cone is to be removed to expose a fresh portion of the lead, and the said circular indented portions of the wrapper afford a ready means not only for showing where the severance is to be made, but, together with the depressions in which it is indented, also a convenient and positive guide for the knife, pin, or other instrument by which the wrapper is to be cut or severed.

The indented portions of the wrapper are preferably produced by means of felt or rubber rollers, which work on the wrapper under pressure and force the portions 16 down into the depressions 14; but this may be otherwise accomplished. In the operation of sinking the portions 16 the stock may be pressed down so far as that the under side may come into contact with the cylindrical portions 11 on the cones; but the portions 16 may not be sunk quite down to the portions 11, as represented, which feature is not material herein, although it is essential that the sinking or indenting of the portions 16 below the general plane of the wrapper shall be enough to constitute a guide to disclose to the user of the pencil the various localities at which the wrapper is to be severed for the purpose of properly and rapidly removing the successive cones.

The wrapper is preferably gummed or pasted over its entire surface, so that when the portions 16 are depressed the portions 17 thereof will be caused to adhere to the shoulders 9 as well as to the ends 10 of the series of cones. The feature of causing the portions 17 to adhere to the shoulders 9 is an important and desirable one, since when the wrapper is severed and the foremost cone is removed the portion 17, adhering to the circular shoulder 9, avoids the formation of a raw or protruding edge, which would not only be shabby in appearance and uncomfortable to the fingers of the user, but would be liable to be torn from the cone following, thus increasing the unsightly appearance of the working end of the pencil; but of course as far as the main feature of the indented portions of the wrapper is concerned such portions need not be pasted or glued within the depressions, although I prefer such a construction for the reasons given. The outer side of the tip of the cone is rounded at 13 to give the tip more strength.

The open clear space 7 is provided between adjacent cone-tips for several important reasons, one of which is that it permits greater flexibility without undue strain on the points of the cone, the material of which has a certain inherent elasticity, and at the same time the said space also affords the lead an opportunity to bend slightly instead of breaking, which it is more apt to do if the cones be tightly nested together without any intervening space, so as to form a continuous bearing, as in my aforesaid patent.

I have found in practice that a pencil constructed with the intervening space 7 between the cone ends is less rigid or inflexible than one made as shown in my said patent, and in consequence of the yielding or flexible quality imparted to the new or present pencil the pencil as a whole may be slightly bent out of its general plane without liability of fracturing the lead or the cones, which is a desideratum I have sought to accomplish.

It is desirable to have the cylindrical contact portion or bore 3 as small or as short as possible, and it is for this purpose mainly that the first slant or taper 4 is provided interiorly on the cone, for it will be seen that if the longer taper 6 were continued down to the surface of the lead a much longer cylindrical contact portion 3 would be thereby provided and which to obtain the best results is not so desirable, although as far as the main feature of the intervening space 7 is concerned the initial slight taper 4 may be omitted.

The base or upper end of the lead may be secured to a base-piece 18, as in my former patent, as far as some of the features of my present invention are concerned; but in the present structure I prefer to fasten the lead in place by gluing or pasting it directly to the cylindrical portions 3 at the tips of the cones. The object of thus fastening the lead is to prevent the same from falling out of the pencil in case it should become broken by an unnatural or violent bend of the pencil as a whole. By fastening the lead at each cone-point it will be seen that even if the lead

should become broken, as stated, it will not slip bodily out of the bore of the pencil. Although this mode of attaching the lead obviates the necessity for fastening the upper end of the lead to the base-piece, as described in my said patent, it nevertheless may be so secured, in addition to its multiplicity of fastening-points, to the cones, if it should be found desirable.

Another advantage in having the cylindrical bearings 3 as short or as small as possible occurs in connection with the present mode of fastening in the lead. If the lead be glued to cones so nested together as to form a continuous bearing, as in my said patent, there would be difficulty in removing the cones in sharpening the pencil, owing to the large surface which would be glued to the lead; but by having the contact small or slight only a very small portion of the bore of the cone adheres to the lead, and the adhesion is so slight or weak that the cone may be readily stripped from the lead by a slight pressure when the wrapper at its base end is severed. At the same time it will be seen that owing to the large number of these small glued points throughout the length of the pencil due to the multiplicity of the cones used—say about twenty-five to each pencil—if the stick of lead should be broken farther down in the pencil there would be enough lines or points of adherence between the lead and the cones to prevent the lead from dropping out of the pencil.

The lead is preferably glued to the cone-points by dipping the lead in glue and wiping the surplus glue from it before it is put into the cones, leaving enough glue or adhesive matter on the lead for the cone-points to adhere to, but not enough, of course, for the glue to fill the tapering spaces 7 between cone-points. At Fig. 3 I have represented by the section lines 19 the layer or coating of glue.

It will be understood that some features of my present invention may be used without others without departing from the gist of my several claims.

The lead or marking-crayon may be such as is commonly used in pencils of commerce, or the marking substance may be of slate or soapstone, or any material used by architects, artists, draftsmen, painters, or artisans. The inclosed substance may also be a caustic, drug, or chemical for use by physicians, surgeons, &c., and in the subjoined claims I desire to be understood as covering the use of any material or substance used for purposes other than marking so long as the same is contained in a structure embodying my improvements.

The pencil may have a cap-piece 20, if desired, similar to that described in my said patent.

What I claim as new, and desire to secure by Letters Patent, is—

1. A pencil or the like comprising a series of individual, nested, conical members constructed to form a series of circular depressions, and a wrapper or cover secured to said series of conical members and having portions which are indented or pressed into said series of circular depressions.

2. A pencil or the like comprising a series of individual, nested, conical members constructed to form a series of circular depressions, and a wrapper or cover secured to the outer surfaces of said conical members and indented and also secured within said series of circular depressions.

3. A pencil or the like comprising a series of individual, nested, conical members, each of which is formed with a shoulder 9 and an end or shoulder 10, thereby forming with adjacent conical members circular depressions, and a wrapper or cover surrounding said series of conical members and having portions which are indented into said series of circular depressions.

4. A pencil or the like comprising a series of individual, nested, conical members, each of which is provided with a shoulder 9, a shoulder 10, and a cylindrical portion 11, and a wrapper or cover surrounding said series of conical members and having portions which are indented within the series of circular depressions formed by said portions 9, 10 and 11.

5. A pencil or the like comprising a series of individual, nested, conical members, each consisting of a cylindrical collar 8, a shoulder 9, a shoulder 10, and a cylindrical portion 11, and a wrapper or cover secured to the cylindrical collar 8 and indented within the circular depressions formed by the portions 9, 10 and 11.

6. A pencil or the like comprising a series of individual, nested, conical members having each a shoulder 9, so put together as to form a series of circular depressions at the ends or bases of said members, and a cover or wrapper indented into said series of circular depressions and secured to said shoulders 9.

7. A pencil or the like comprising a series of individual, nested, conical members having each an outside taper and an inside taper, the latter being greater in length than the former, so that when the series of conical members are nested together a space, as 7, is formed or produced between the tips or smaller ends of successive cones, and a continuous stick of lead or the like.

8. A pencil comprising a series of individual, nested, conical members each tapering externally and internally the latter taper being longer than the former, and having each a cylindrical bearing portion, as 3, forward of the internal tapering portion, and a centrally-disposed continuous stick of lead or the like.

9. A pencil comprising a series of individual, nested, conical members, each tapering externally and internally, the latter taper being longer than the former, and each having a cylindrical bearing portion 3, a cylindrical col-

lar 8, and a cylindrical depressed portion 11, a centrally-disposed continuous stick of lead or the like, and an indented wrapper or cover.

10. A pencil or the like comprising a series of individual, nested, conical members having each an internal cylindrical bearing portion 3, a slight tapered portion 4 extending therefrom, a longer tapered portion 6 extending from the portion 4 to the base end of the conical member, the external cylindrical collar 8, the shoulders 9 and 10, and the external taper 12, a centrally-disposed continuous stick of lead or the like, and an exteriorly-indented cover or wrapper.

11. A pencil or the like comprising a series of individual, nested, conical members constructed to form a series of cylindrical depressions, and a spiral wrapper or cover secured to said members and having portions which are indented or pressed into said series of circular depressions.

12. The conical member consisting of the cylindrical collar 8, the shoulders 9 and 10, the cylindrical portion 11, the outside taper 12 and the inside taper 6 of greater length than the outside taper.

13. The conical member consisting of the cylindrical collar 8, the shoulders 9 and 10, the cylindrical portion 11, the outside taper 12, the inside longer taper 6, and the inside cylindrical bearing 3.

14. The conical member comprising the interior cylindrical bearing 3, the interior taper 4, the interior taper 6, the exterior collar 8, the shoulders 9 and 10, the cylindrical portion 11, and the exterior taper 12.

15. A pencil or the like comprising a series of individual, nested, conical members having each an outside taper and an inside taper, a part of the latter being cut away or tapered at a different angle at one end, so that the series of nested conical members form or produce a series of spaces as 7, between the tips or smaller ends of successive cones, and a continuous stick of lead or the like.

16. A pencil or the like comprising a series of individual, nested, conical members, each tapering externally and internally, a part of the latter being cut away or tapered at a different angle, and having each a cylindrical bearing portion as 3 forward of the internal tapering portion, and a centrally-disposed continuous stick of lead or the like.

17. A pencil or the like comprising a series of individual, nested, conical members, each tapering externally and internally, a part of the latter being cut away or tapered at a different angle and having each a cylindrical bearing portion 3, a cylindrical collar 8, and a cylindrical depressed portion 11, a centrally-disposed continuous stick of lead or the like and a wrapper or covering.

18. A pencil or the like comprising a series of individual, nested, conical members, having each an internal cylindrical bearing portion 3, a slight tapered or cut-away portion 4 extending therefrom, a longer tapered portion 6 extending from the portion 4 to the base end of the conical member, the external cylindrical collar 8, the shoulders 9 and 10, and the external taper 12, a centrally-disposed continuous stick of lead or the like, and a wrapper or covering.

Signed at New York city, in the county of New York and State of New York, this 11th day of June, A. D. 1897.

HERBERT H. SEAMAN.

Witnesses:
EDGAR P. HICKS,
K. V. DONOVAN.