

Aug. 4, 1936.

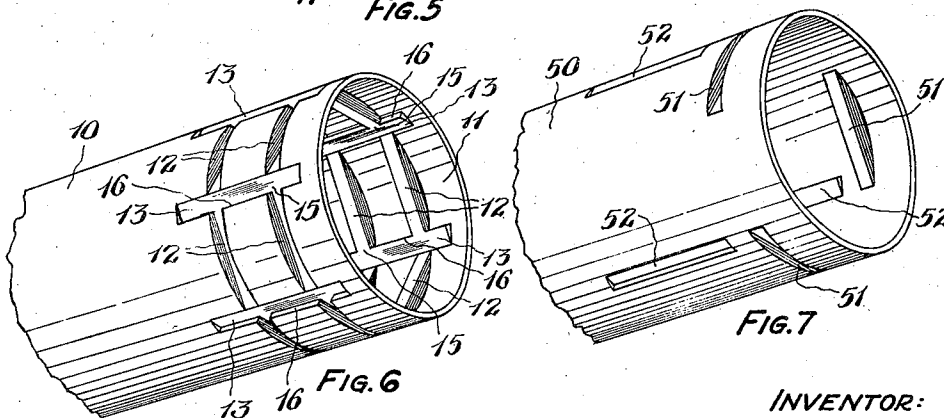
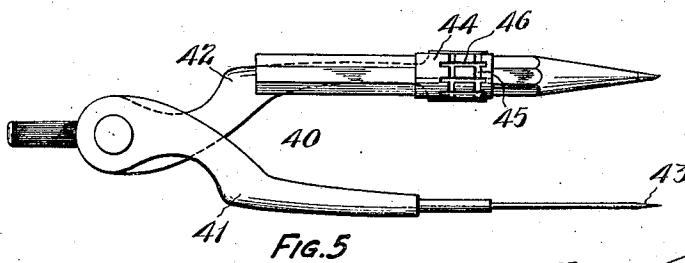
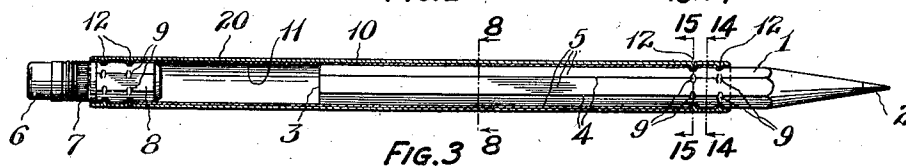
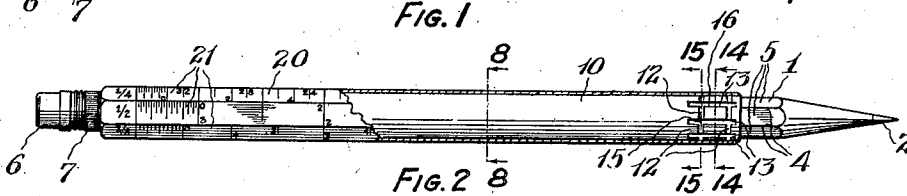
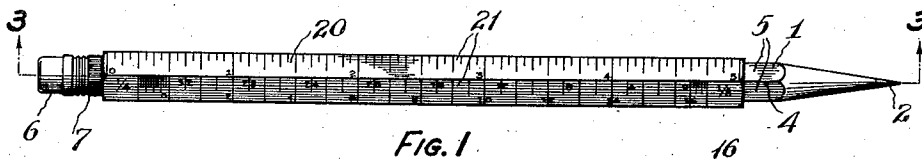
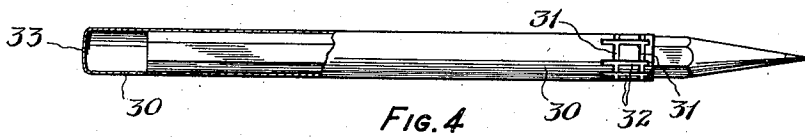
J. P. KUSA

2,049,810

PENCIL LENGTHENER AND HOLDER

Filed Oct. 7, 1933

2 Sheets-Sheet 1



INVENTOR:
JAMES P. KUSA

BY *Herman Eschle*

ATTORNEY.

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J. P. KUSA

2,049,810

PENCIL LENGTHENER AND HOLDER

Filed Oct. 7, 1933

2 Sheets-Sheet 2

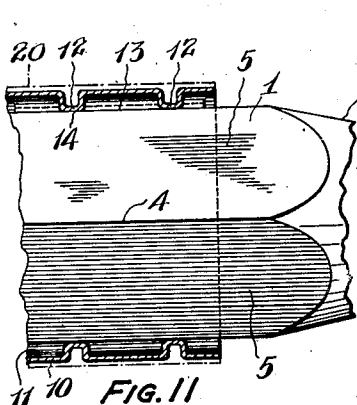


FIG. 11

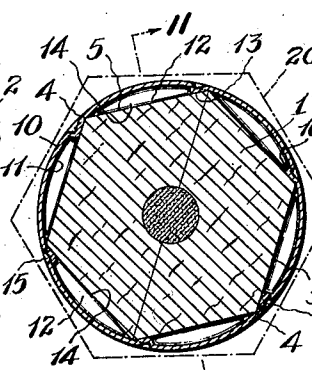


FIG. 9

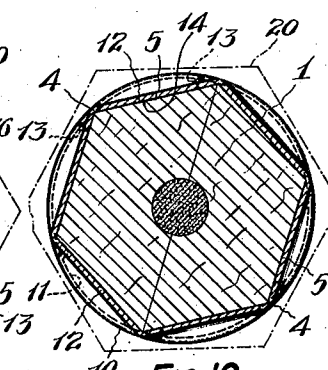


FIG. 10

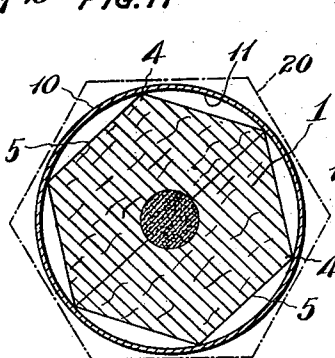


FIG. 8

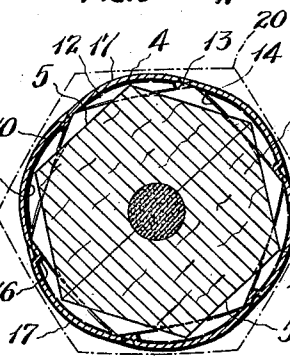


FIG. 12

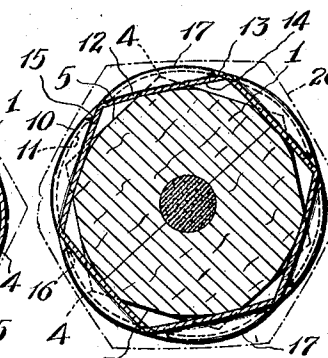


FIG. 13

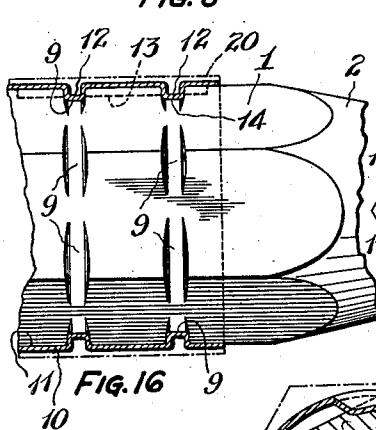


FIG. 16

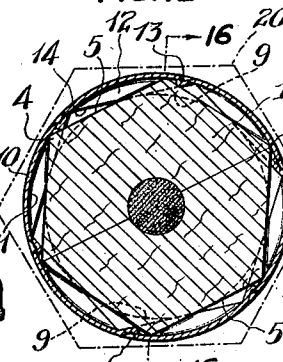


FIG. 14

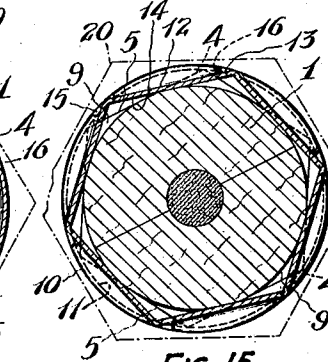


FIG. 15

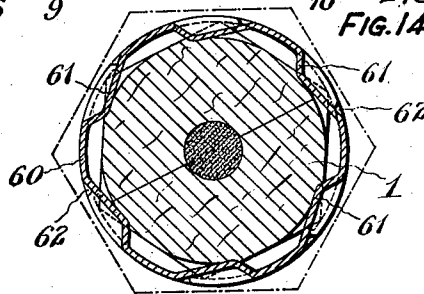


FIG. 17

INVENTOR:
JAMES P. KUSA
By *Herman Eisele*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,049,810

PENCIL LENGTHENER AND HOLDER

James P. Kusa, Cleveland, Ohio

Application October 7, 1933, Serial No. 692,598

18 Claims. (Cl. 120—9)

This invention relates to pencil lengtheners and holders for holding short pieces of pencils in order to provide a greater length of grip and greater ease of manipulation and also to provide an enlarged and more suitable grip for longer pencils.

As is well known, when a pencil is worn down to a relatively short length it ceases to be convenient for use and it is necessary that the short piece or stub of the pencil be mounted in a lengthener so as to provide a grip of suitable length. It also frequently happens that, after a pencil has been somewhat shortened by use, the writer desires to mount the pencil in a holder in order to provide an enlarged or more suitable grip. In many cases, also, the writer or draftsman has a series of holders having easily perceptible differences of form, color or inscriptions which he uses selectively to hold pencils of different degrees of hardness, which are otherwise only distinguishable by close examination of the lettering on the sheath of the pencil.

I am aware that lengtheners have been provided which have a socket formed in the end of a handle, but such lengtheners are too long to be used conveniently unless the pencil is comparatively short because they grip the pencil only at its end. I am also aware that tubular sleeves of metal and other materials have been telescopically applied to pencils to serve as lengtheners and holders. In this type of holder, the binding engagement with the pencil is insufficient to prevent objectionable inward movement of the pencil caused by ordinary pressure in writing, and the gripping of the pencil is not sufficiently firm to prevent the rotary movement of the pencil when sharpened in a mechanical sharpening device.

One object of this invention, therefore, is to produce an improved pencil holder which will more firmly grip and more rigidly hold the pencil than is possible with previously known holders.

A further object of this invention is to produce a pencil holder which is adapted to hold various lengths of pencils, without causing the combination of pencil and holder to be of objectionable length.

A further object of this invention is to produce a pencil lengthener and holder which positively grips the pencil and from which the pencil may be axially extended as the pencil is used, thus maintaining a substantially constant overall length of pencil and holder.

A further object of this invention is to produce a pencil holder in which the pencil may be mount-

ed very quickly with a slight rotary movement and with a minimum of effort.

A further object of this invention is to produce a pencil lengthener in which a pencil or stub of the usual standard polygonal cross sectional shape may be inserted in the holder to any desired extent and may be gripped in that position in the holder by a slight rotary motion.

A further object of this invention is to produce a pencil lengthener of this type in which the pencil will not shift or twist when it is being sharpened in a mechanical pencil sharpener.

A further object of this invention is to produce a pencil holder and lengthener artistic in appearance, simple and economical in construction, and efficient and certain in operation.

For the accomplishment of the above and other objects, this invention comprises a pencil holder consisting of a tube with a generally cylindrical bore having an interior dimension adapted to slidably but snugly receive a wood sheathed pencil of polygonal cross section, the tube being formed with one or more transverse inwardly directed indentations or projections which will not prevent the insertion of the pencil into the tube but which are adapted, when the pencil is rotated, to impress themselves in the apex lines or ridges of the pencil whereby the pencil is prevented from moving axially relatively to the tube.

A further feature of this invention is the provision of a stop, preferably formed by one or more longitudinal inwardly directed projections which limit rotary movement of the pencil to a degree which will arrest the rotation of the pencil while the ridges are in engagement with the transverse indentations.

A more specific additional feature of this invention is the provision of resilience and frictional resistance in association with the transverse inwardly directed projections whereby a tendency of the pencil to be inadvertently released is prevented.

In the preferred embodiment of this invention the indentations are so shaped and disposed as to leave a polygonal opening having substantially the same shape and size as the cross section of the pencil for which the holder is intended, whereby the pencil may be freely passed into the holder when the pencil and opening are properly rotatably aligned and whereby the transverse indentations impress themselves in the several apexes or projecting ridges of the pencil, when the pencil is slightly rotated.

This invention additionally includes the provision of a cover, casing, or sheath to reinforce the

cylindrical tube and to supplement the resilience of the tube and to improve the artistic appearances of this novel holder and to enlarge its utility.

- 5 Further and more specific objects of this invention will become apparent from the following description and claims. This description sets forth in detail certain devices embodying this invention, such disclosed devices constituting, however, but a few of the forms in which the principle of this invention may be applied.

Referring to the annexed drawings:

Fig. 1 is a plan view of a preferred form of this improved holder gripping a pencil.

- 15 Fig. 2 is a side elevation of the parts shown in Fig. 1, a certain casing element or sheath of the holder being shown partly in section.

Fig. 3 is a complete axial section of this improved holder, this view being taken in the plane indicated by line 3, 3 in Fig. 1 and the pencil inserts being shown in elevation.

- 20 Fig. 4 is a view, partly in elevation and partly in axial section, illustrating a simplified form of this improved holder and showing a pencil gripped in the holder.

Fig. 5 illustrates this invention applied to the pencil arm of an inexpensive form of drafting compass.

- 25 Fig. 6 is an enlarged perspective view of the gripping portion of one of the tubular elements comprising a portion of the devices shown in the preceding figures, and disclosing some of the important elements of this invention.

- 30 Fig. 7 is a view similar to Fig. 6 showing one of many alternate arrangements of the elements of the gripping portion of the tubular element comprised in my invention.

- 35 Fig. 8 is an enlarged transverse sectional view thru the holder and pencil at a point spaced from the gripping portion, this view being taken on the plane indicated by line 8, 8 of Figures 2 and 3.

- 40 Fig. 9 is an enlarged transverse section thru the holder and pencil taken on the plane indicated by line 14, 14 in Figures 2 and 3, this view, however, showing the pencil in slidable relation to the holder, this being the position in which the pencil is inserted in the holder.

- 45 Fig. 10 is a view similar to Fig. 9 but taken on the plane indicated by line 15, 15 in Figures 2 and 3, this view also showing the pencil in that angular position in the holder in which it is inserted into the holder and is slidable therein.

- 50 Fig. 11 is an axial section thru the holder, this view being taken on the plane by line 11, 11 in Fig. 9.

- 55 Fig. 12 is a view similar to Fig. 9 but showing the pencil rotated about 30 degrees clockwise from its insertion position, as viewed in the drawings.

- 60 Fig. 13 is a view similar to Fig. 10 but also showing the pencil rotated about 30 degrees clockwise from its insertion position.

- 65 Fig. 14 is an enlarged view taken in the plane indicated by line 14, 14 in Figures 2 and 3, this view corresponding with Figures 9 and 12 but showing the pencil securely gripped in the holder, having been rotated about 45 degrees clockwise from the inserting position shown in Figure 9 as viewed in the drawings.

- 70 Fig. 15 is a similarly enlarged view taken on the plane indicated by line 15, 15 in Figures 2 and 3, this view corresponding with Figures 10 and 13 but showing the pencil rotated about 45 degrees from the inserting position shown in Fig. 10 and being securely gripped in the holder.

Fig. 16 is an axial section thru the holder, this view being taken on the plane indicated by line 16, 16 in Fig. 14.

Fig. 17 is a view similar to Fig. 15 showing, however, a modified form of transverse pencil gripping elements.

In reference to Figures 9 to 16 inclusive, it should be noted that, in the broader aspects of this invention, the outer cover or casing of this lengthener is not an indispensable element and this casing has been shown in broken lines for the sake of clearness in explaining the construction and functions of the broadly novel features of this invention.

It should be noted also that the words "lengthener" and "holder" are used interchangeably in the specifications and claims and I desire not to be limited in any respect by the use of one term or the other.

Referring first to the form of the invention illustrated in Figures 1, 2, and 3, wherein 1 represents a pencil, mounted in one end of this improved holder by a novel gripping conformation to be hereinafter described. The pencil is formed with a point 2 and a square upper end 3. The pencil 1 has a polygonal sheath having apex lines or ridges 4 alternating with plane faces 5. As will appear, the lengthener or holder is preferably formed with a continuous opening extending therethrough and both ends are provided with substantially identical gripping conformations. As a result of this provision a pencil may be mounted in both ends of the holder or, as shown in the drawings, an eraser 6 may be mounted in the opposed end, this eraser being seated in the usual ferrule 7, on a pencil end 8, such an eraser assembly as might be reclaimed from an otherwise completely used pencil.

The lengthener or holder, in the embodiment illustrated in Figures 1, 2 and 3 consists of an inner substantially tubular member 10 and an outer sheath or casing 20.

As best shown in Figures 6, and 8, 9, and 10, the tubular member 10 is preferably made of thin gauge metal having a slight resiliency. The member 10 is generally tubular in cross section and has a tubular bore 11 of substantially the same inside diameter as the diameter of the circle circumscribed about the ridges of the pencil 1, but is provided with a plurality of inwardly extending projections consisting of inwardly forced indentations or teeth formed, in the illustrated embodiment, of metal of the tube. These inwardly projecting teeth are located preferably near one or both ends of the tube and are adapted to grip the pencil 1 and/or pencil end 8. These projections are of two types: first, transversely extending projections or teeth 12 and second, longitudinally extending projections or tongues 13.

The transverse projections or teeth 12 are relatively narrow in the longitudinal direction while the longitudinal tongues 13 are relatively narrow in the transverse direction but extend a considerable distance longitudinally of the tube. The transverse teeth 12 are so formed that their bottoms 14 form chords across the bore of the tube. It will further be noted that the length of these bottom chords is substantially the same as the width of the faces of the pencil 1 and that, in the embodiment shown, the number of teeth 12 is the same as the number of faces on the pencil and that these teeth are equally spaced around the bore 11 of tube so that the constricted area formed by the inwardly projecting teeth is sub-

stantially similar in size and shape to the cross section of the pencil. It will be apparent that the projections 12 substantially contact the faces of the pencil as clearly seen in Figure 10. The constricted area at the teeth 12 is of a size to provide a snug sliding fit for the insertion of the pencil into the tube, when the pencil is properly angularly aligned with the constricted area. As will be evident from an inspection of the drawings, these inwardly extending projections form transverse fins or walls adjacent the periphery of the bore.

The number of longitudinal tongues 13 is also preferably, but not necessarily, the same as the number of ridges 4 in the sheath of the pencil. These tongues 13 are circumferentially located substantially at one end of the transverse teeth 12 and intersect these teeth, as shown at the points 15, and extend on each side of the teeth 12 for a substantial distance, as will appear from an inspection of Figures 2 and 6. The longitudinal tongues are formed with a relatively abrupt wall 16, extending in a nearly radial direction.

The outer sheath or casing 20 may be made of any suitable material either formed or molded. I prefer to make the sheath of pyralyn, celluloid, hard rubber or similar plastic compound. The sheath 20 is mounted on the tube 10 by cementing, forcing, or in any other desired manner. The inner opening of this sheath should preferably be of the same shape as the outside of the tubular member 10. The outer contour of the sheath may be polygonal as shown in the drawings, or cylindrical, or of any other desired shape. The outer surface of the sheath may be smooth, or ribbed, fluted or otherwise fashioned. I prefer, however, to apply various scales to the smooth faces of the exterior of the sheath as shown at 21, for use of engineers and draftsmen. Other suitable inscriptions such as decimal tables, interest tables, etc., may be imprinted for other professions as will be understood, or these surfaces may be used for advertising purposes.

In assembling the pencil in the holder it is necessary to axially align the pencil with the tube and to rotate the pencil so as to angularly align the faces 5 with the bottoms 14 of the inwardly extending transverse teeth 12. The pencil may then be inserted in the holder and the upper portion thereof moved past the projections until the desired length of the pencil remains outside of the holder. The position of the pencil relatively to the inwardly extending projections 12 and 13 at this time is clearly shown in Figures 9, 10, and 11. The pencil is then rotated relatively to the holder in a clockwise direction as viewed in the drawings. As the pencil is rotated, it will be evident that the bottoms 14 of the inwardly projecting transverse teeth 12 will cut into the apex lines or ridges of the pencil, cutting or crushing the wood at the ridges and forming recesses 9 at and adjacent the ridge lines as clearly shown in Figures 12, 13 and 16. The scale of the drawings being very substantially enlarged in Figures 9 to 16 inclusive, it will be understood that the inwardly projecting teeth are relatively narrow and practically constitute knife edges and for this reason the resistance to the rotation of the pencil caused by the teeth 12 is not excessive.

It will also be apparent from Figures 12 and 13 that the pencil is now positively locked against axial movement relatively to the holder, due to the interlocking of the teeth 12 in the recesses 9. It will be understood that the passing of the ridges of the pencil in engagement with the bot-

toms of the teeth 12 will cause a slight outward distention of the tube as shown at 17 in Figures 12 and 13.

The continued rotation of the pencil in a clockwise direction brings portions of the pencil adjacent the ridges in engagement with the longitudinally extending inwardly projecting tongues 13 which effectively serve as stops or abutments to prevent or arrest the further rotation of the pencil in the clockwise direction. It will be apparent that this additional rotation from the position shown in Figures 12 and 13 to the arrested position of the pencil shown in Figures 15 and 16 does not cause the release of the recesses 9 from the transverse teeth 12. When the pencil reaches the arrested position, the outward distention 17 retracts due to the passage of the high points or ridges of the pencils beyond the innermost point of the bottoms 14 of the teeth 12. It will also be understood that the resilience and the resistance of the tube to distend will effectively prevent the inadvertent counterclockwise rotation of the pencil in use and the consequent undesired release of the pencil. It will also be apparent that the resilience of the wood will cause the faces of the recesses 9 to firmly grip the sides of the teeth 12 thus creating considerable frictional resistance against the counterclockwise rotation of the pencil.

It will be apparent that the gripping engagement of the holder on the pencil is such as to positively prevent axial movement of the pencil in the holder during all reasonable uses of the pencil and also that the gripping engagement will positively prevent the rotation of the pencil in one direction and will prevent the rotation of the pencil in the other direction by a substantial frictional and elastic resistance. It will also be apparent that this pencil will not become shifted or rotated when sharpened on a mechanical sharpener as the usual right hand rotational effect will only serve to more tightly abut the ridges 4 against the longitudinal tongues 13.

The snug fit of the pencil in the bore 11 of the tubular member holder in which the ridges of the pencil practically contact the bore of the tube on all sides, as clearly shown in Fig. 8, result in providing a very firm engagement of the pencil in the holder which is free from the looseness and flexure which is frequently found in holders.

The eraser 6 being provided with a pencil end extension 8 is mounted in the holder in the same manner as explained above for the pencil except that, for the sake of conforming to usual custom, the arrangement of inwardly projecting teeth and longitudinal tongues is made "opposite hand" from that shown at the right end of the holder in Figures 1 to 3 in order that the eraser may be locked in the holder by the usual right hand rotation.

A great many types of holders may be provided including this invention and I illustrate in Fig. 4 only one such modification. In this modification, 30 indicates a tubular member in which is mounted a pencil similar to the pencil 1. This tubular member is provided with transverse indentations 31 and longitudinal indentations 32, both at the right end of the tube as viewed in the drawings and this tube is closed at the left end as shown at 33. In this modified form the outer sheath or casing is entirely omitted for the sake of simplification and economy. In order to compensate for the stiffness afforded by the casing 20 in the first described modification, I make the tube 30 of slightly thicker material,

as will be understood. The outer surface of the tube 30 may be finished by corrugating, knurling, or otherwise finishing to provide a friction surface, if desired.

Another adaption of this invention is illustrated in Fig. 5 in which this improved gripping device is shown associated with a usual inexpensive type of drafting compass 40. This drafting compass 40 is shown as having the usual arms 41 and 42, the arm 41 being formed with a center point 43 and the arm 42 being formed with a substantially tubular member 44 provided with transverse indentations 45 and longitudinal indentations 46. The interior construction of the inward projections in the tube portion 44 is substantially identical with that previously described, and the mounting of the pencil is effected in the same manner as in the preferred adaptation.

In compasses of this type a direct endwise vertical pressure is usually exerted on the pencil which frequently causes the pencil, in compasses of this type with which I am familiar, to slip in the holding sleeve. In many compasses also, in order to overcome this difficulty, clumsy screw devices are provided which constitute an obstruction in the use of the compass and require much time to adjust. It will be evident that the present invention discloses a simple and yet effective device for preventing endwise movement of the pencil in its holder and which at the same time permits the easy removal of the pencil from the compass for the purpose of sharpening, and likewise makes possible the easy axially shifting of the pencil to compensate for the wear of the point.

The forms of this invention described above, all include two series of transverse gripping teeth, each series consisting of six inwardly projecting teeth 12, this being the number of the sides of the pencil shown. All of the teeth in one series are located in the same transverse plane and the two series are spaced from each other longitudinally by a substantial distance. The longitudinal inwardly projecting tongues 13 are six in number, also corresponding with the number of ridges on the hexagonal pencil shown, and are positioned so as to intersect the transverse teeth 12 and are, in fact, of a length greater than the space between the two series of transverse teeth. I have found that this arrangement of gripping elements functions very satisfactorily, both for long and short pencils, but it is distinctly pointed out that many other arrangements of these gripping elements may be devised without departing from the scope of this invention and that the complete particular arrangement disclosed is not necessary.

It is not essential, for instance, that two series of teeth 12 be provided, as one series is very satisfactory. It is also not necessary that the number of teeth be the same as the number of sides or ridges of the pencil, as it is entirely practical to provide teeth to grip only a few of the ridges, without sacrificing the efficacy of this device. It will be understood, however, that the firmness of grip and the resistance to axial shifting will increase directly with the number of transverse teeth engaging the pencil.

In any event, I prefer to use a number of teeth which is a multiple of the total number of ridges on the pencil for the purpose of securing a balanced arrangement of stresses.

The longitudinal tongues likewise need not nec-

essarily be the same in number as the number of ridges on the pencil. Essentially it is necessary only to provide one such tongue which will engage one of the ridges, that being sufficient to arrest the rotation of the pencil in the holder. For the sake of balancing the conditions, however, I prefer to employ a plurality of these tongues and preferably a number which is a multiple of the number of ridges of the pencil. It is not necessary that these tongues intersect the transverse teeth 12 as the tongues may be positioned at any point longitudinally in the tubular member, which is reached by the pencil. It is essential, however, that the longitudinal tongues be so located that they will arrest the rotation of the pencil before the ridges 4 pass beyond and disengage from the teeth 12.

One modification of an altered arrangement of inwardly projecting teeth and tongues, is illustrated in Fig. 7 in which a tubular member 50 is shown having three transverse inward projections or teeth 51 and in which three longitudinal tongues 52 are shown, the three tongues being spaced a short distance longitudinally from the teeth 51. While the teeth 51 are all shown in the same transverse plane it is understood that this is not obligatory, as the teeth might be disposed in different planes relatively to each other without affecting the practicability of the holder.

The inwardly projecting teeth in the forms of the invention thus far described all have inner edges which are substantially chords across the bore of the holder. In the broader aspects of this invention it is not essential that these teeth be in the form of segmental walls or fins across the bore. It is necessary only that the teeth project a sufficient distance inwardly to be adapted to form a recess or groove in the projecting portions of the pencil when the pencil is rotated and that these teeth remain in these recesses when the rotation of the pencil has been arrested by the longitudinal stops. The bottoms of the teeth may have any desired contour within the limits just mentioned. For the purpose of illustrating one other form of teeth I have shown, in Fig. 17, a tube 60 provided with teeth 61 which are considerably less in transverse extent than the teeth 12, which effectively lock the pencil axially and which are positioned relatively to the longitudinal tongues 62 so that the teeth 61 prevent axial movement of the pencil when the ridges of the pencil engage the tongues 62.

The tubular member 10 in the embodiments illustrated is shown as formed from a metallic tube. It will be understood that this tubular member may have any desired exterior shape and that it may be formed of any other material and in any other manner, as for instance, by molding, by die-casting or other well-known methods. It is essential, however, that the bore of the tube be of a shape to permit the insertion of a pencil and that it have guiding portions which prevent the free lateral movement of the pencil. It is not essential that the member 10 be made resilient and, in the event that the tube is relatively rigid, the inwardly extending transverse projections still produce a resistance to the loosening of the pencil due to the frictional pressure of the teeth 12 in the recesses 9 formed in the ridges 4 of the pencil, thus preventing the inadvertent loosening of the pencil. It is also feasible to form the inwardly extending projections by imbedding these projections, or a collar

including the projections, in any type of plastic molded material thereby securing the desirable wearing qualities of the projections in a molded or die cast holder.

5 In its broader aspects it is not essential that a continuous circular bore be provided to receive the pencil. A series of spaced supports for the pencil would be the equivalent of the circular bore. A plurality of sets of spaced teeth or
10 knife edges 12, such as those shown, without any circular bore would also effect the same purpose of preventing free lateral movement in the holder.

The pencil is illustrated as hexagonal. This
15 invention is not limited to the use of a hexagonal pencil and the pencil sheath might be octagonal, square, triangular, or have any other suitable number of sides, in which case the gripping means in the holder would have to be correspondingly
20 altered as will be understood. Faces of the sheath of the pencil might also be slightly concave instead of plane.

As will be understood, any other suitable type of eraser may be conveniently mounted into the
25 upper end of the lengthener in place of that shown, as the conformation of the inwardly directed projection is adapted to firmly grip many forms of standard erasers.

Many other modifications of this invention and its application will naturally occur to those skilled in this art, and the present disclosures should therefore be considered as typical only, and I
30 desire not to be limited to the exact construction shown and described.

I also desire to point out that the novel structure set forth in the claims may be used either as a separate holder or lengthener to aid in the manual gripping of the pencil, or the structures set forth in the claims may be used in association
40 with or in combination with any other auxiliary device such, for instance, as the compass illustrated in Fig. 5, and no claims are appended to include combinations of these improved holders with these auxiliary devices, as such claims would
45 constitute aggregations only and would therefore be informal. The claims are accordingly intended to cover the pencil holding structures set forth whether or not they are associated with other devices.

50 What I claim is:

1. A pencil holder having a generally tubular body formed with a relatively narrow inwardly projecting cutting edge disposed transversely of the body and a relatively narrow inwardly projecting tongue disposed longitudinally of the body.
55

2. A pencil holder for holding polygonal pencils, having a generally tubular bore formed with a plurality of inwardly projecting transverse walls forming an open polygonal passage within the tubular bore of substantially the same contour as the cross section of the pencil.
60

3. A pencil holder for holding polygonal pencils having flat faces and ridges, said holder including a tubular portion whose inside diameter is substantially the same as the diameter of the ridges of the pencil, a transverse indentation in the wall of the tubular portion and a longitudinal indentation in the tubular portion, the length of the longitudinal indentation being substantially
70 greater than the longitudinal dimension of the transverse indentation.

4. A pencil lengthener for holding polygonal pencils having a generally tubular opening adapted to receive the pencil and having inwardly projecting transverse fins, adapted, upon rotation of
75

the pencil, to form transverse grooves in the ridges of the pencil, whereby the pencil is prevented from moving axially, and said opening having inwardly projecting shoulder means adapted to engage one of the ridges of the pencil when said fins are imbedded in said ridges, whereby the rotation of the pencil is arrested. 5

5. A pencil lengthener for holding polygonal pencils formed with a plurality of ridges and plane faces, said lengthener having a generally
10 tubular bore and being provided with means adapted, upon rotation of the pencil, for forming indentations in the ridges of the pencil, positive means for arresting the rotation of the pencil in one direction, and friction means tending to retard the rotation of the pencil in the opposite direction. 15

6. A pencil lengthener for holding polygonal pencils with plane faces and ridges, having a generally cylindrical bore of substantially the same diameter as the circle circumscribed about the polygonal pencil and provided with a plurality of inwardly projecting spaced transverse teeth, the inner edges of said teeth being angularly positioned to contact a plurality of spaced
20 faces of said pencil and adapted, upon rotation of the pencil, to form recesses in the ridges of the pencil. 25

7. A pencil lengthener for holding polygonal pencils, having a generally tubular bore and having a plurality of spaced indentations projecting into said bore and adapted to substantially contact the plane faces of said polygonal pencil and adapted, upon rotation of the pencil, to form recesses in the ridges of the pencil, some of said
30 indentations being located in one transverse plane of the tubular member, and other of said indentations being located in a transverse plane spaced from the first named transverse plane, and means adapted to arrest the rotation of said
35 pencil in one direction. 40

8. A pencil holder for holding polygonal pencils, having a generally tubular body with an opening of substantially the same inside diameter as the diameter of the circle circumscribed about the polygonal pencil, and formed with an inwardly projecting transverse tooth and with an inwardly projecting longitudinally extending tongue, said longitudinally extending tongue being located in an axial plane passing thru said
45 transverse tongue adjacent one end thereof. 50

9. A pencil holder having a generally cylindrical bore formed with a relatively narrow inwardly projecting tooth disposed transversely of the bore and a relatively narrow inwardly projecting tongue disposed longitudinally of the bore, said longitudinal tongue and said transverse tooth intersecting each other, the bottom of said transverse tooth forming a chord of the transverse circle of the tube and the longitudinal tongue extending substantially to the bottom of the transverse tooth. 55

10. A pencil lengthener for holding polygonal pencils including a generally tubular member made of resilient material, said tubular member being formed with inwardly projecting transverse indentations adapted to substantially contact the plane faces of said polygonal pencil, and adapted, when engaged by the ridges of the rotating pencil, to resiliently distort the tubular member, and being formed with inwardly projecting shoulder indentations adapted to abut the ridges of the pencil, and a casing enclosing said tubular member whereby said indentations are concealed and
60 65 70 75

whereby the resilience of said tubular member is reinforced.

11. A pencil lengthener for holding polygonal pencils having a generally tubular body formed of relatively resilient material, said body being formed interiorly with an inwardly projecting transverse tooth whose bottom forms an edge substantially equal in length to the width of one of the faces of the pencil, said tooth being adapted, upon rotation of the pencil, to be sprung outwardly by the engagement of the rotating ridges of the pencil with the bottom of the tooth, whereby the tooth exerts a resilient pressure against the ridges of the pencil.

12. A pencil lengthener for holding polygonal pencils, having a generally tubular body formed of relatively resilient material, said body being formed interiorly with a transverse tooth whose bottom substantially contacts one of the faces of the pencil, said tooth being adapted, upon rotation of the pencil, to spring outwardly upon the engagement of the rotating ridge of the pencil with the tooth and exert a resilient pressure against the ridge of the pencil, and said tubular body being provided with inwardly projecting shoulder means positioned to abut one of the ridges of the pencil while the tooth is pressing against a ridge of the pencil, whereby the rotation of the pencil is frictionally restrained in one direction and whereby the rotation of the pencil is positively arrested in the other direction.

13. A pencil holder for holding a polygonal pencil, having a bore adapted to receive the pencil and formed with inwardly projecting spaced teeth adapted, upon rotation of the pencil, to form recesses in the ridges of the pencil and means adapted to arrest the rotation of the pencil, said means being located to arrest said rotation when the teeth are imbedded in said recesses.

14. A pencil holder for holding polygonal pencils formed with a plurality of ridges and plane faces, said holder including a generally tubular bore provided with means longitudinally fixed relatively to the holder and adapted, upon rotation of the pencil, to form indentations in the ridges of the pencil, and means for arresting the rotation of the pencil before the periphery of the pencil has advanced a distance equal to the width of the one face of the pencil.

15. A pencil holder for holding polygonal pencils, having a generally cylindrical bore, and formed with a plurality of transverse inwardly

projecting teeth whose inner portions form chords across the bore and which are adapted, upon rotation of the pencil, to cut progressively deeper indentations in the ridges of the pencil as the ridges intersect the teeth, and pencil positioning means adapted to engage one of the ridges of the pencil for arresting the rotation of the pencil before the ridges reach the ends of the chord forming teeth.

16. A pencil holder having a generally tubular body formed with a cylindrical bore provided with a transverse inwardly directed tooth, the inner edge of said tooth forming a chord extending in a substantially straight line interiorly across the bore of the tubular body, the ends of said chordal inner edge intersecting the wall of the body.

17. A pencil holder for holding polygonal pencils having substantially flat faces and ridges, said holder being provided with a generally tubular bore portion whose inside diameter is substantially the same as the outside diameter of the ridges of the pencil and is provided with a longitudinally fixed inwardly projecting transverse fin, whose inner edge forms a chord across the bore portion, the length of said inner edge being substantially equal to the width of one of said flat faces and said inner edge being adapted, upon rotation of the pencil in the holder, to form a progressively deepening groove in one of the ridges of the pencil as the pencil is rotated, whereby the pencil is prevented from moving axially in the holder when the fin is imbedded in the ridge of the pencil.

18. A pencil holder for holding polygonal pencils having substantially flat faces and ridges, said holder being formed with a bore whose diameter is substantially the same as the diameter of the ridges of the pencil, and is provided with a plurality of circumferentially spaced inwardly projecting transverse fins formed with substantially straight inner edges intersecting the wall of the bore at their ends, said inner edges being of a length substantially equal to the width of one of the flat faces of the pencil and being adapted upon rotation of the pencil, to form transverse grooves in the ridges of the pencil, whereby the pencil is prevented from moving axially when the fins are imbedded in the ridges of the pencil.

JAMES P. KUSA.