No. 638,923. Patented Dec. 12, 1899.

A. D. GROVER.

PENCIL.

(Application filed Feb. 27, 1896.)

(No Model.)

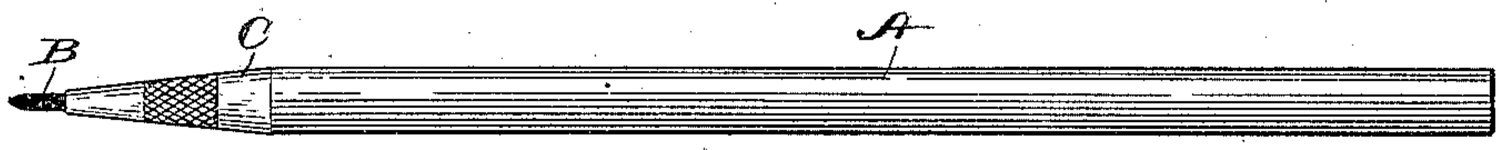

Fig. 1.

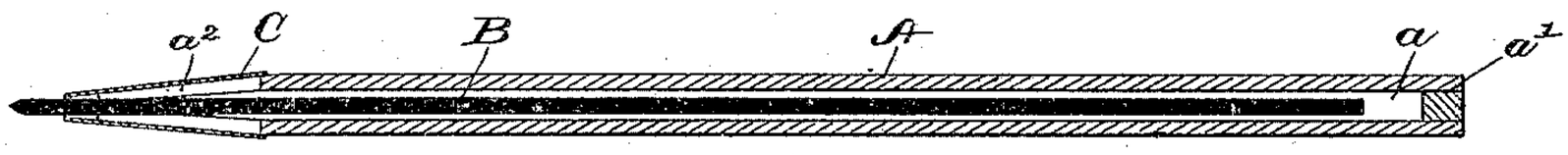

Fig. 2.

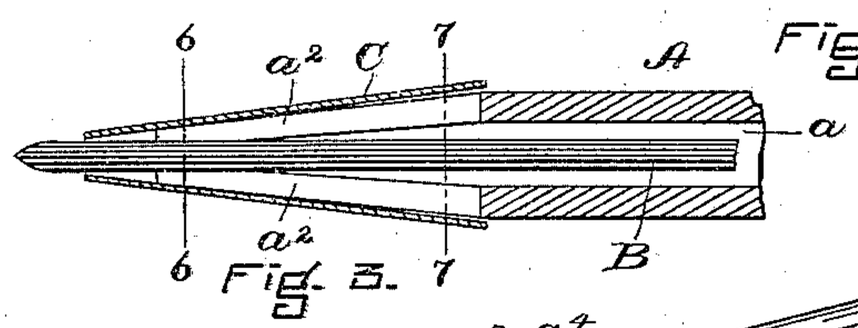

Fig. 3.

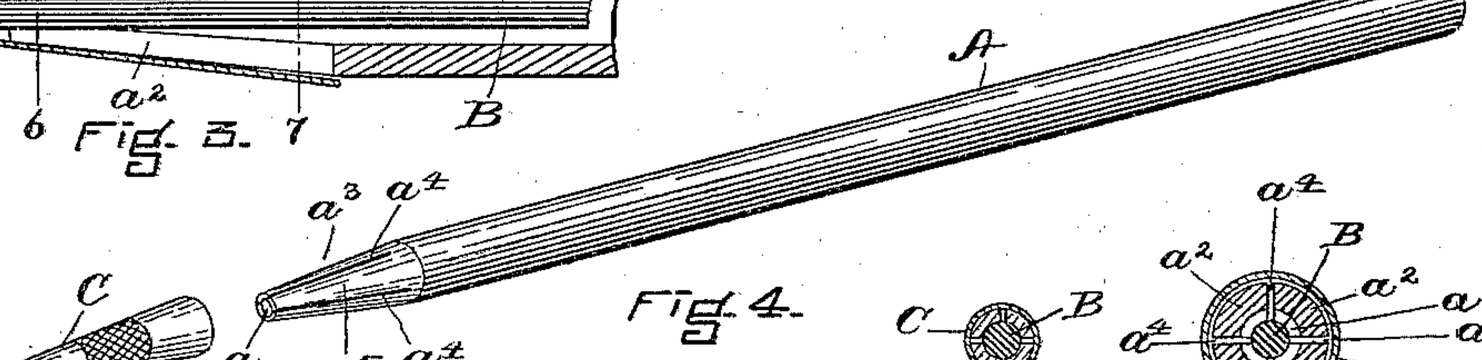

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

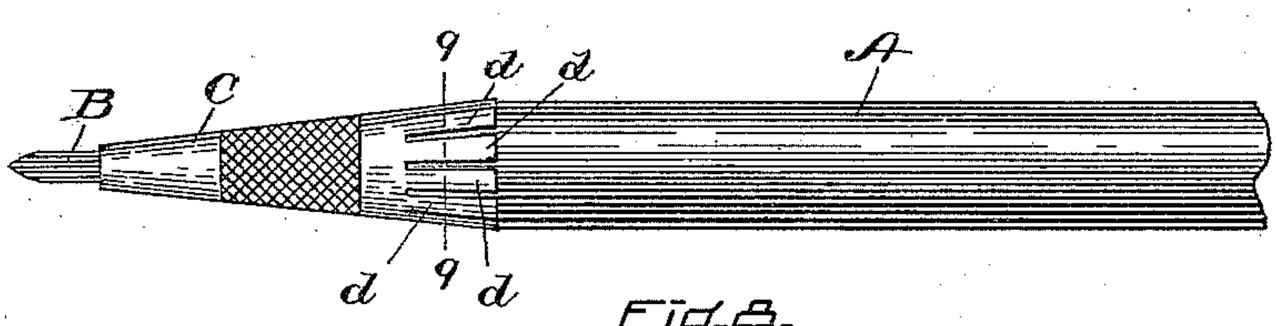

Fig. 8.

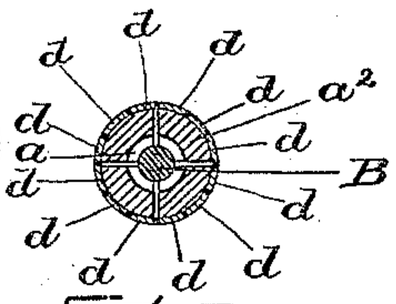

Fig. 9.

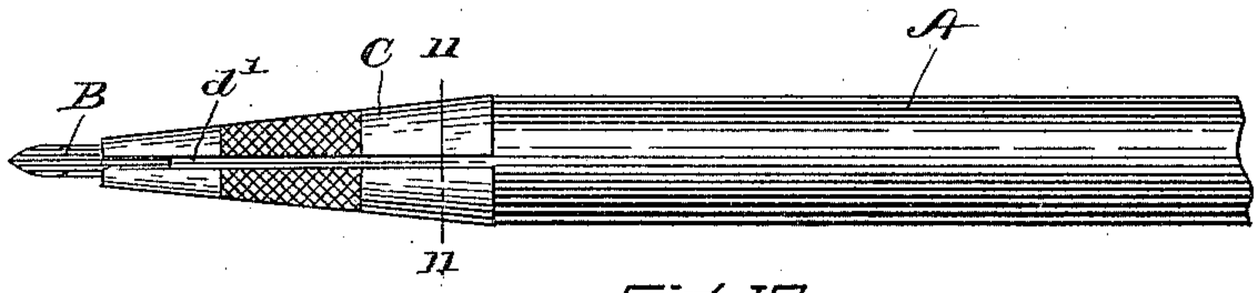

Fig. 10.

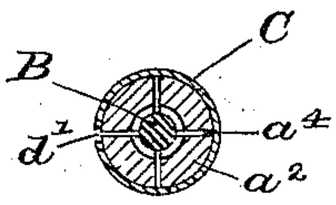

Fig. 11.

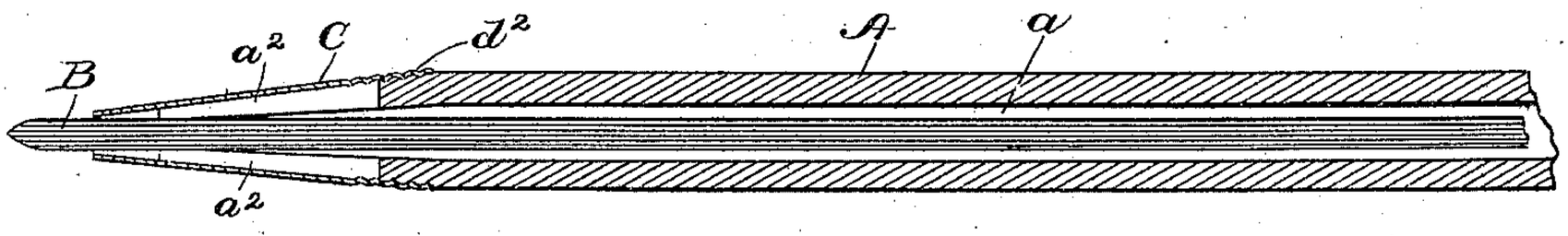

Fig. 12.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ALBERT D. GROVER, OF MALDEN, MASSACHUSETTS.

PENCIL.

SPECIFICATION forming part of Letters Patent No. 638,923, dated December 12, 1899.

Application filed February 27, 1896. Serial No. 581,042. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. GROVER, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Pencils, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to an improvement in pencils, which comprises a wooden sheath, cylinder, or stem, having a central cavity, one end of which is conical and provided with cross-recesses or saw-kerfs, which divide it into a series of jaws, and has a conical tip or ferrule of a shape to force the outer or small ends of the jaw together toward each other and upon the lead. The tip or ferrule is preferably so shaped as to be adjustable upon the said tapering end of the pencil-sheath, and it preferably also has means by which it may be secured on the conical end. The wooden jaws of the wooden sheath are thus adapted to be closed upon a lead or other marking device and to be held closed thereon with sufficient stress to prevent the movement of the lead in the sheath.

Referring to the drawings, Figure 1 is a view in plan of a pencil having the features of my invention. Fig. 2 is a longitudinal central section thereof. Fig. 3 is a longitudinal central section of the point end enlarged. Fig. 4 is a view in perspective showing the wooden sheath and its conical end. Fig. 5 is a view in perspective of the conical tip. Fig. 6 is a view in cross-section upon the dotted line 6 6 of Fig. 3. Fig 7 is a view in cross-section upon the dotted line 7 7 of Fig. 3. Fig. 8 is a view in plan, enlarged, representing means for holding the tip to the pencil-sheath. Fig. 9 is a view in cross-section upon the dotted line 9 9 of Fig. 8. Fig. 10 represents another way of securing the tip to the wooden sheath. Fig. 11 is a cross-section upon the dotted line 11 11 of Fig. 10. Fig. 12 represents still another way of securing the metal tip to the conical end of the sheath.

A is the wooden sheath. It is formed of any usual wood, and it has a central cavity a, preferably extending from one end to the other of the sheath, although not necessarily so, and adapted to receive the lead B. The end a' of the longitudinal cavity is closed in any desired way. The opposite end of the cavity is adapted to be contracted in size by the sections a^2 of the wooden sheath, which are pressed inwardly by means of the conical ferrule or tip C and held by it in this position. In order to accomplish this, the end a^3 of the wooden sheath or stem is made of the conical or tapered form which a sharpened pencil generally has, and in this tapering end of the wooden sheath narrow recesses or saw-kerfs a^4 are cut, which extend from its apex or smaller end practically its entire length and which are of a width to permit the divided sections at the end to be closed inward toward each other and upon the pencil-lead B near its outer end. This closing of the sections a^2 of the conical end of the wooden sheath or stem is produced by the conical ferrule or tip C, which preferably is of thin metal, but which may be of gutta-percha, paper, or any other suitable material and which preferably has a conical cavity of a slightly-greater angle than the angle of the conical end of the wooden sheath a^3. This is for the purpose of enabling it to apply the greatest closing pressure upon the conical end at or near its smaller or outer end, and it is also for the purpose of providing it with a further longitudinal movement or adjustment upon the conical end, whereby it may be further moved or pressed thereon to secure a continued closing pressure upon the conical end after it has first been set or used to accommodate for such variations as may come in use and wear. This construction, somewhat exaggerated, is represented in Fig. 3. The end of the tip extends beyond the end of the conical section of the sheath and may act to coöperate therewith in sustaining the point of the lead.

As a rule I prefer that the central tip be provided with means for attachment to the pencil-wood other than that provided by friction between an expansible tip and the wood.

In Fig. 8 I have represented the tip as provided with means for gripping the pencil ends with a yielding adjustable grip, the re-

sult being attained by providing the large end of the tip with a series of grasping-fingers *d*, which are closed sufficiently to be somewhat smaller than the base of the conical section instead of larger, as represented in Fig. 3, and so as to hug the base rather tightly when forced thereon. This will not interfere with its longitudinal adjustment.

In Fig. 10 the entire tip is represented as having a hugging property by having the longitudinal slit *d'* extending from one end to the other, by means of which the tip is in effect provided with spring jaws or holders throughout its length, which tend to close upon the conical end with any desired yielding pressure and which permit the longitudinal adjustment of the tip upon the conical end.

In Fig. 12 I have represented the tip as secured to the pencil-wood by providing it with a short threaded section d^2. This preferably is at its enlarged end, and it screws upon the end of the pencil, preferably forming its own thread therein as it is turned.

In use the lead is inserted by removing the tip sufficiently to permit it to be passed into the cavity, preferably from the conical end. Its point end is then adjusted to any desired position and the lead locked to the conical end by pressing the conical tip upon the conical end with any desired stress.

The advantages of the invention arise from the simplicity and cheapness of the construction as well as the providing of an otherwise ordinary pencil with a uniform length and with a finished conical end of the usual type of a sharpened pencil and means by which its length is never varied and its lead end constantly maintained without removing any part of the wood of the pencil.

While I have spoken of lead, I do not wish to confine the invention to the use of an ordinary lead, but may use any other kind of a marker.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

In a pencil the case A having a conical end a^3 provided with saw-kerfs a^4 extending the entire length of the end a^3 thereby forming the sections a^2 and the conical ferrule C having an attaching inner end, as and for the purposes described.

ALBERT D. GROVER.

In presence of—
F. F. RAYMOND, 2d,
J. M. DOLAN.