

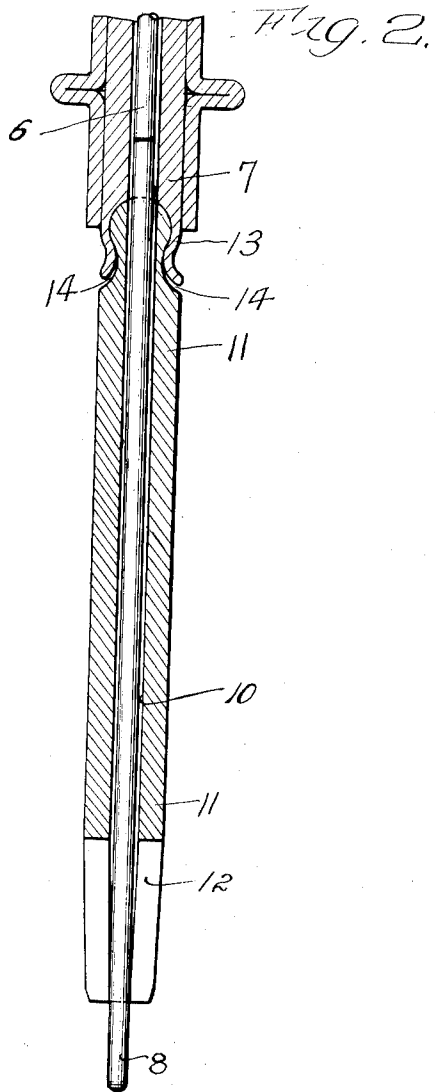
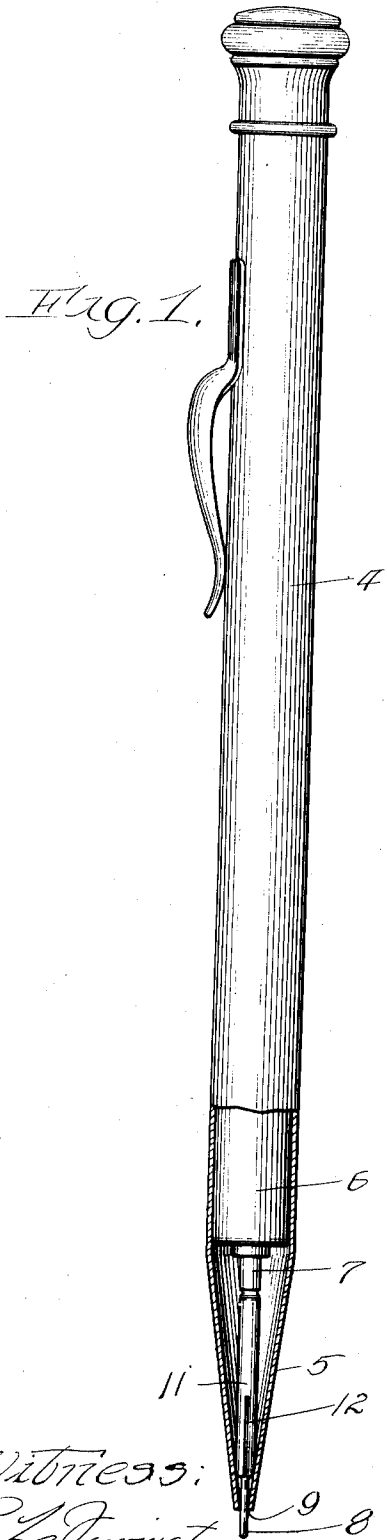
P. W. OLSON.

PENCIL.

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1,385,187.

Patented July 19, 1921.



Witness:
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UNITED STATES PATENT OFFICE.

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PENCIL.

1,385,187.

Specification of Letters Patent. Patented July 19, 1921.

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To all whom it may concern:

Be it known that I, PHILIP W. OLSON, a citizen of the United States, residing at Fort Madison, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

My invention relates to pencils and has for its object the provision of a device of the character named having a flexible lead tube therein so as to yield and prevent breaking leads between said lead tube and the casing of the pencil.

Other objects will appear hereinafter.

An embodiment of my invention is illustrated in the accompanying drawing, forming part of this specification, and in which—

Figure 1 is a side view of a pencil embodying my invention and having a portion broken away to expose underlying parts; and

Fig. 2 is an enlarged fragmental section of a lead tube used in the device.

In metal pencils adapted to contain small leads it often occurs that the lead tube does not quite register with the lead opening in the casing and breaks the leads just inside of the casing. My present improvement provides a flexible tube which can yield laterally sufficiently to make the lower end of the lead tube always register with the lead opening in the casing.

In the drawing I have indicated a conventional pencil having a shell 4 with one end tapered. In the shell is mechanism 6 for operating the lead. I have not shown the operating parts since they form no part of this invention. The operating parts may be such as set forth in United States Patent No. 1,284,156, issued November 5, 1918, to Walter A. Sheaffer, or any other desired operating mechanism.

From the lower end of the lead-holding and feeding mechanism 6 extends a lead tube 7 which guides a lead 8 down to a lead opening 9 in the lower end of the tapered portion 5 of the shell. The bore 10 of the lead tube should register with the opening 9, but where the tube 7 is rigid it often happens that the lower end does not quite register with said opening and consequently causes the leads to break just inside of the casing. My present lead tube is formed so that its lower end portion 11 may yield laterally a few thousandths of an inch, or

as much as is necessary to make its bore 10 register with said opening 9.

The lower end of portion 11 is slotted as at 12 and compressed slightly so as to grip the lead 8 tight enough to prevent it from dropping out of the tube in use.

The bore above the slotted part 12 is sufficiently large to permit of the necessary lateral movements of the lower portion 11 for bringing the bore 10 in registration with opening 9 without breaking the leads.

It will be apparent that the lead tube 7 may be formed in many ways so that it will have sufficient flexibility to permit the lower end to move laterally the desired amount. One example of such a tube is indicated in the drawing. In this example the lower end portion 11 is attached to the upper part 7 by a ball and socket joint 13. This is simply a convenient form of joint and many other forms may be provided, or the tube 7 may be formed of flexible material. In forming a ball joint, as indicated, sufficient play is permitted at point 14 for allowing the part 11 to move laterally.

While I have shown one form for making the lead tube flexible I do not desire to be limited to this form but desire to avail myself of such forms and constructions as come within the scope of the appended claims.

I claim:—

1. A pencil comprising a shell having a tapered inner wall at one end and a lead opening at the apex of said tapered wall; a lead tube having a portion held rigidly against lateral movement in said shell and a portion engaging said tapered inner wall; and a connection between said portions permitting the second-mentioned portion of the shell to yield laterally out of alignment with said first-mentioned portion, the yielding of said second-mentioned portion being controlled by said tapered inner wall.

2. A pencil comprising a shell having its inner wall at one end tapered with a lead opening in said tapered end; and a lead tube made up of two portions, one portion being held against lateral movements in the shell and provided with a socket in one end and the other portion having a ball at one end thereof disposed in said socket and its other end engaging the wall of said tapered end of the shell.

3. A pencil comprising a shell having its

inner wall at one end tapered with a lead opening in said tapered end, and a lead tube mounted in the shell with one end portion resting against said tapered inner wall and holding the bore of the lead tube in registration with said lead opening, there being a joint in said lead tube adapting said end portion for lateral movements.

4. A pencil comprising a shell with its inner wall at one end tapered and a lead opening at the apex of said tapered end, and a lead tube mounted in said shell with a portion held rigidly in the shell, and a universal joint in the lead tube rendering the latter flexible, said universal joint per-

mitting the lower portion of the lead tube to be held by said tapered inner wall with the bore of the lead tube always in registration with said lead opening.

5. A pencil comprising a shell having a tapered inner wall with a lead opening at the apex of said tapered inner wall, and a flexible lead tube disposed in said shell with one end engaging said tapered inner wall, the latter holding the bore of the lead tube in registration with said lead opening.

In testimony whereof I have signed my name to this specification on this 9th day of December, A. D. 1919.

PHILIP W. OLSON.