

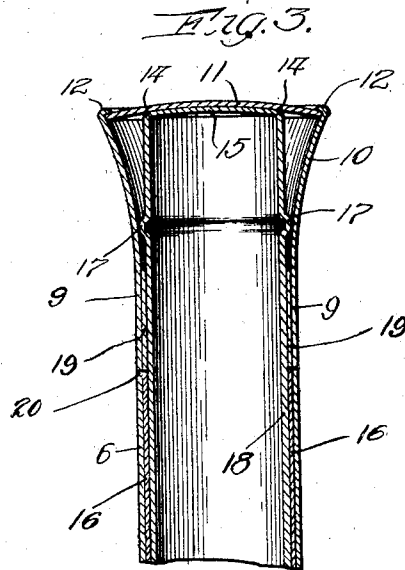
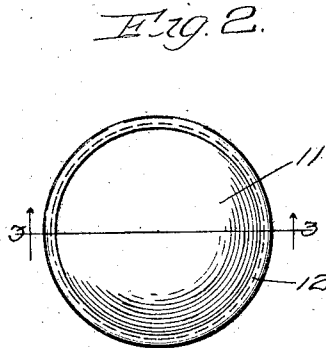
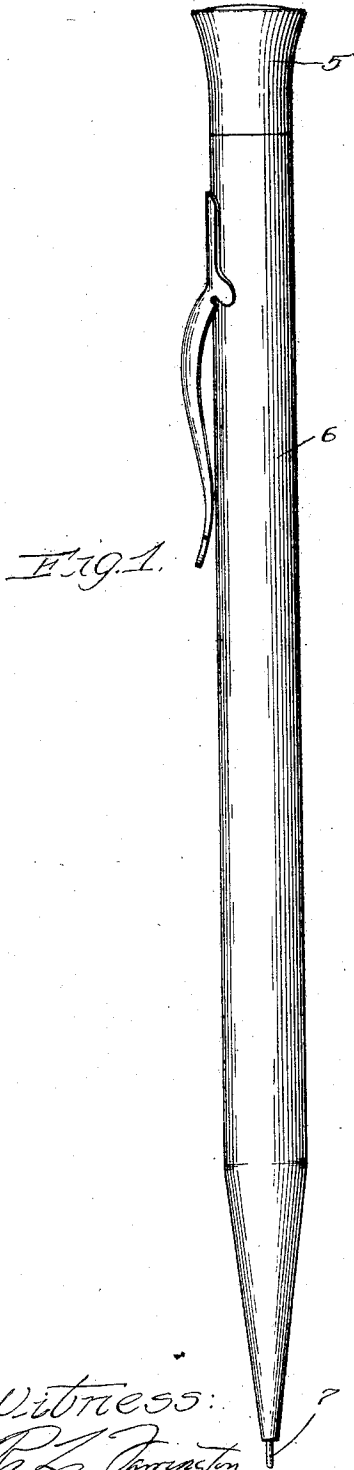
Sept. 22, 1925.

1,554,604

W. A. SHEAFFER

PENCIL

Original Filed May 5, 1919



Witness:  
*R. L. Harrington*

*Invention*  
Walter A. Sheaffer,  
By *Brown & Nissen, Attys.*

# UNITED STATES PATENT OFFICE.

WALTER A. SHEAFFER, OF FORT MADISON, IOWA.

## PENCIL.

Application filed May 5, 1919, Serial No. 294,929. Renewed March 1, 1923.

*To all whom it may concern:*

Be it known that I, WALTER A. SHEAFFER, 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 more particularly to the heads of such pencils.

One of the objects of my improvement is the provision of a pencil head which is formed in a manner to resist being easily dented or otherwise bent out of shape.

A further object is the provision of means in the parts of the head adapted to facilitate holding such parts together, and giving rigidity and strength thereto.

Other objects will appear hereinafter.

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

Fig. 1 is a side view of a pencil embodying my invention;

Fig. 2 is an enlarged view of the top end of same; and

Fig. 3 is a section taken on line 3—3 of Fig. 2.

In the drawing I have indicated a pencil substantially the same as shown and described in my United States Letters Patent No. 1,284,156, granted November 5, 1918, with the exception of the top or head end 5, which is the matter to which this application is directed.

In the drawing I have indicated a pencil body 6 attached to the head 5. The head 5 in the construction illustrated is adapted to be turned to move the lead or other writing point 7 out of the body 6 in the same manner as is fully described in my above-named patent. It will be understood, however, that the head 5 is adapted for association with other forms of pencil body than that referred to.

The head 5 is preferably made up of an outer shell 9, which may be of substantially the same shape and size on its outer side as the pencil body 6. The upper end of the shell 9 is flared outwardly, preferably curved longitudinally of the pencil, providing a bell-shaped end 10 for the upper end of the part 9. A disc 11 is disposed in the top end of the flared part 10, and the edge 12 of the part 10 turned in or crimped over the outer side of the disc 11, holding

the latter in position. This form of shell provides sides curved longitudinally, with the extreme top end of the head having the greatest diameter. Since this upper end is reinforced by the disc 11 and turned-in parts 12, it is very rigid and will resist hard blows without being dented or otherwise bent out of shape.

The disc 11 is preferably curved outwardly or convex. This curvature of the disc 11 stiffens it and makes it capable of withstanding greater blows than a plane disc would, although in some instances a plane disc may be utilized instead of the curved disc shown.

Extending into the member 9 is a cylindrical member 18. This member 18 in most pencil constructions comprises an extra lead chamber, but the use of the member 18 as a receptacle for leads is not important in this construction. The member 18 extends into the body 6 for connecting the head with the body. The particular connection between member 18 and body 6 is not described but may be such as that clearly set forth in my patent above-mentioned. When the head is removed from the body, the member 18 is withdrawn with the head.

The member 18 preferably extends against the inner side of the disc 11 and rests against the latter as at 14. The tubular member 18 may be provided with a bottom 15, and this bottom may have the curvature of the inner side of disc 11, substantially as indicated in Fig. 3, or this bottom 15 may have any other desired shape. The member 18 is secured to the shell 9 by means of solder 19, or in any other suitable or desirable manner, the important thing being to make a rigid connection between said parts 9 and 18.

On the outer side of the member 18 I provide a shoulder 17 which engages the inner side of the flared part 10 of the shell. This shoulder or enlargement 17 may be formed by making a circumferential bead in the member 18, or in any other desirable manner to provide a means for making the inner side of the shell press against a part of the tube 18. The shoulder 17 pressing against the inner side of the flared part 10, and the end 14 pressing against the inner side of the disc 11 tends to hold the tube 18 tightly in the shell and against the disc 11. This construction also holds the disc 11 tightly against the turned-in parts 12.

The body of the pencil is provided with an inner shell 16 with which the lead reservoir tube 18 frictionally engages. The head of the pencil being rigidly secured to the lead reservoir tube and the latter being in frictional engagement with the inner shell 16 so as to impart rotary movement to the latter relatively to the outer shell 6, constitutes an operating head, as may be more fully understood by referring to the aforesaid patent No. 1,284,156. The lead reservoir tube 18 also has a sliding fit with the inner shell 16 and the head is therefore longitudinally removable from the inner shell 16.

It should also be noted that the pencil head comprises an outer shell flaring outwardly longitudinally of the pencil and uniformly to a circular edge indicated in Figs. 2 and 3. The greatest cross-area is therefore at the extreme top end of the pencil. The disc closure 11 is within the boundary of the circular edge 12 and extends over such maximum cross-area. The lead tube 18 extends into the outer shell 10 to form a hollow chamber with a bottom adjacent the closure 11. The flaring from the cylindrical portion 9 to the circular edge 12 is continuous to form with the circular reinforcing closure 11 a bell-shaped cap as shown in Fig. 1. Preferably the closure 11 has the shape of a segment of a sphere and so also the bottom 15 of the lead reservoir 18 so that such bottom 15 may make a close fit with the inner surface of the disc 11. As above explained, the annular bead 17 engages the inner surface of the outer shell 10 between the cylindrical portion thereof and the flaring portion thus assisting the securing means at 19 to hold the bottom of the lead reservoir abutting against the inner surface of the disc 11. Maximum space for the leads is therefore secured and at the same time the lead reservoir assists in forming an operating head rigid in construction and prevented from being dented when the pencil falls on the floor, either sidewise or endwise. When the pencil falls sidewise there will be a resisting thrust at the circular edge 12 of the disc 11 where the annular flange of the shell 10 fits over such circular edge. When the pencil falls endwise there will be a resisting thrust over the bottom 15 and at the circular edge 14 of the lead reservoir tube 18.

I claim:—

1. A pencil comprising a head portion having an outer shell with one portion substantially cylindrical and another portion flared, a member in and substantially fitting the cylindrical part of the shell with a shoulder engaging the inner wall of said flared portion, and a disc secured in the flared end of the shell and engaging an end of said member.

2. A pencil comprising a head portion having an outer shell with one portion of substantially uniform cross-section and another portion flared, an outwardly curved disc held in the flared end of the shell, and a member in said shell with a shoulder engaging the flared part of the latter and its end engaging the disc.

3. A pencil comprising a head portion having outer and inner shells with the outer shell having one end closed and one end of the inner shell engaging the inner wall of said closed end; and a shoulder on the inner shell engaging the inner wall of the outer shell holding the end of the inner shell tightly against the closed end of the outer shell.

4. A pencil comprising a head portion having telescoping tubes with the outer tube flaring at its upper end; a disc resting against an end of the inner tube and held at its periphery in the flaring opening of the outer tube; and a bead struck up in the inner tube engaging the flaring inner wall of the outer tube.

5. A pencil head portion comprising an outer shell having one end flaring; a convex disc closing the flaring end of said outer shell; and an inner shell having a portion engaging the concave side of said disc and another portion engaging the inner wall of the flaring end of the outer shell tending to hold the shells against relative movements.

6. A pencil head portion comprising an outer shell having an enlargement therein; a disc in the upper end of the outer shell attached at its periphery to said shell; an inner shell disposed in the outer shell with one end resting against said disc; and an enlargement on the inner shell engaging the enlargement on the outer shell and cooperating with the disc to hold the inner shell in position.

7. A pencil head portion comprising telescoping tubes with the outer tube flaring; a closure having its edges attached to the upper flaring end of said outer tube; a closure at the upper end of the inner tube conforming in shape to and fitting against the inner side of the central portion of the first-mentioned closure reinforcing the latter over its central portion; and means associated with the tubes holding said closures together.

8. A pencil head portion comprising telescoping tubes with the outer tube flaring; a sheet material closure in the form of a segment of a sphere, convexed upwardly and having its edges attached to the upper flaring end of the outer tube; a closure at the upper end of the inner tube upwardly convexed and fitting against the inner wall of the first-mentioned closure adapted to reinforce the latter over its central area opposite the upper end of the inner tube; and

means associated with said tubes holding said closures together.

9. A pencil head portion comprising telescoping tubes with the outer tube flaring; an upwardly convexed sheet material disc disposed in and closing the upper flaring end of the outer tube, the top edge of said outer tube being disposed over and securing the latter in position; a closure on the upper end of the inner tube upwardly convexed and fitting against the under side of the sheet material disc reinforcing the latter; and means associated with said tubes for holding said disc and closure together.

10. A pencil head portion comprising telescoping tubes with the outer tube flaring at its upper end; a sheet material disc upwardly convexed and disposed in the upper flaring end of said outer tube, the upper edge portion of said outer tube being disposed over the peripheral edge of said disc holding the latter in operative position; and means holding the tubes against relative movements.

11. A pencil head portion comprising a relatively long lead reservoir tube; a relatively short tube telescoped over the lead tube and having its upper end flaring; a closure in the upper end of said lead tube upwardly convexed; a disc closing the upper flaring end of said relatively short tube and disposed tightly against the entire area of said closure for the lead reservoir tube; and means associated with said relatively short tube and said lead reservoir tube holding said disc tightly against the closure of the lead reservoir.

12. A pencil head portion comprising a relatively long tubular lead reservoir, a relatively short tube telescoped over the outer side of said lead reservoir and having its upper portion continuously and uniformly flaring to a circular edge, and a circular closure spanning the circular edge and convexed outwardly to have the form of a segment of a sphere.

13. A pencil head of sheet metal comprising a tubular portion and a bell-shaped portion merging into each other, the bell-shaped portion being continuously flared from the tubular portion to a narrow circular edge, an annular flange extending inwardly from said narrow circular edge, and a disc fitting within said annular flange and against the inner annular wall of said narrow circular edge in position to resist thrusts and prevent denting when the pencil falls onto a horizontal surface.

14. A pencil head portion comprising an outer shell flaring outwardly longitudinally of the pencil and also flaring uniformly to a circular edge with its greatest cross-section at its extreme top and thereby forming a bell-shaped head, a disc closure within the boundary of said circular edge and extend-

ing over said maximum cross-section, and an inner shell extending into said outer shell to form a hollow chamber extending into said head portion.

15. An operating head for a pencil comprising an outwardly flared portion adapted to be connected to the body of the pencil, the flaring of said head being longitudinally of such body and extending continuously and uniformly to a circular edge at the extreme end of the pencil, and a reinforcing closure within the boundary of said circular edge and extending across the greatest diameter of said flared portion in position to resist falling thrusts and preventing denting of the head.

16. A cap for the head of a pencil comprising a hollow bell-shaped member flared outwardly and longitudinally of the pencil and continuously to a circular edge of maximum diameter, and a reinforcing closure having an outer surface of the shape of a segment of a sphere and located within the boundary of said circular edge and extending across the maximum diameter of said hollow bell-shaped member to resist falling thrusts and preventing denting of the latter.

17. A pencil head comprising an outer shell flared at one end with its greatest cross-area at the aforementioned end; a disc having a peripheral edge attached to the outer shell at its greatest cross-area; and an inner shell disposed in and secured to the outer shell and engaging the central portion of said disc.

18. A pencil comprising an operating head having an outer bell-shaped shell flaring continuously to the extreme end of the head, a closure at such extreme end of the head in position to resist falling thrusts and preventing denting of the head, an inner shell having a chamber adapted to store extra leads for the pencil, and means for securing said inner shell to said outer shell with the bottom of the inner shell adjacent said closure.

19. A pencil head comprising an outwardly flaring hollow bell-shaped portion, and an outer closure extending inwardly from the peripheral edge of the largest cross-sectional area of said bell-shaped portion and secured rigidly thereto in position to enable said edge to resist falling thrusts and prevent denting of the head.

20. A pencil head comprising an outwardly flaring end portion and a disc having the shape of a segment of a sphere fitting within the turned-over edge of said flaring end portion.

21. A pencil head comprising a bell-shaped flaring end portion, a disc fitting against an annular shoulder at the edge of said end portion, and means within said end portion for abutting against the inner surface of said disc.

22. A head for a pencil comprising an outer bell-shaped portion continuously flaring to a circular edge of maximum cross-sectional area, a circular end closure for  
5 said maximum cross-sectional area, a lead reservoir tube extending into said outer bell-shaped portion to the inner surface of said closure, said lead reservoir being adapted to store extra leads for the pencil, and  
10 means securing said tube within said outer bell-shaped portion to abut against the inner wall of said circular closure with the bottom of said lead reservoir substantially at the inner surface of said closure.
- 15 23. A head for a pencil comprising an outer shell flared longitudinally and outwardly uniformly to a circular edge, a disc closure fitting securely under an annular

flange extending inwardly from said circular edge, and an inner shell having a closed  
20 circular bottom fitting against the inner surface of the central portion of said disc.

24. A head for a pencil comprising an outer shell having a cylindrical tubular portion and an outwardly flaring portion, a  
25 circular closure for the said flaring portion, an inner tubular shell concentric with said tubular portion and extending into said flaring portion, and an annular connection between said inner tubular shell and the said  
30 outer shell where said tubular portion merges into said flaring portion.

In testimony whereof I have signed my name to this specification on this 30th day of April A. D. 1919.

WALTER A. SHEAFFER.