

F. KAISER.
PENCIL.

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1,378,174.

Patented May 17, 1921.

Fig. 1

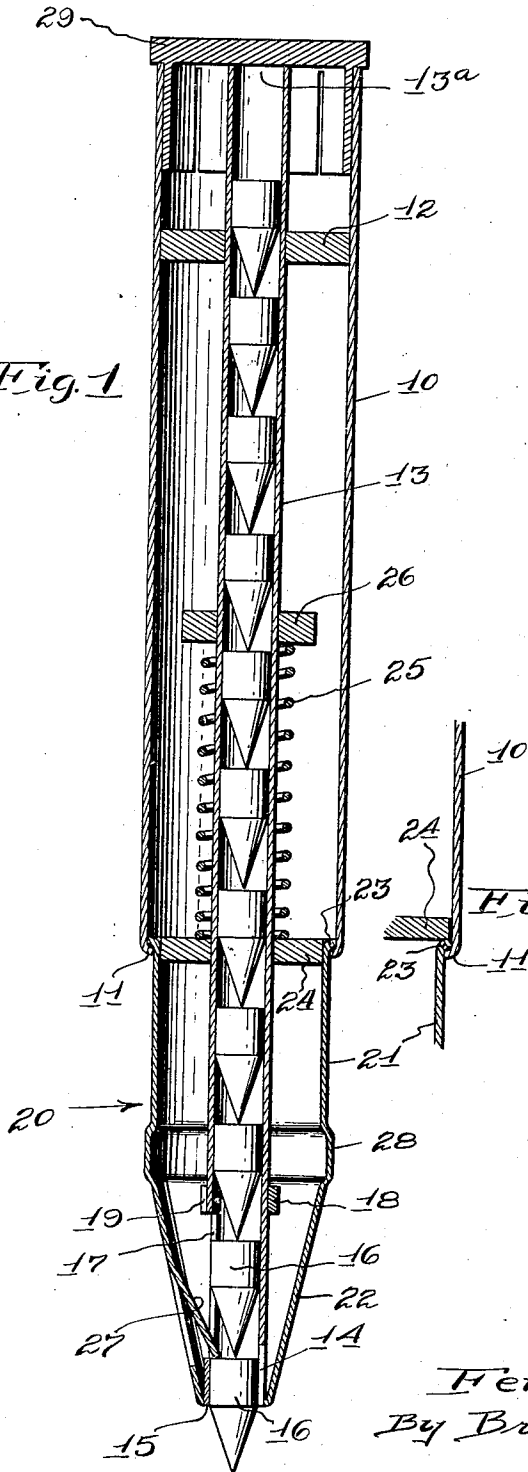


Fig. 2

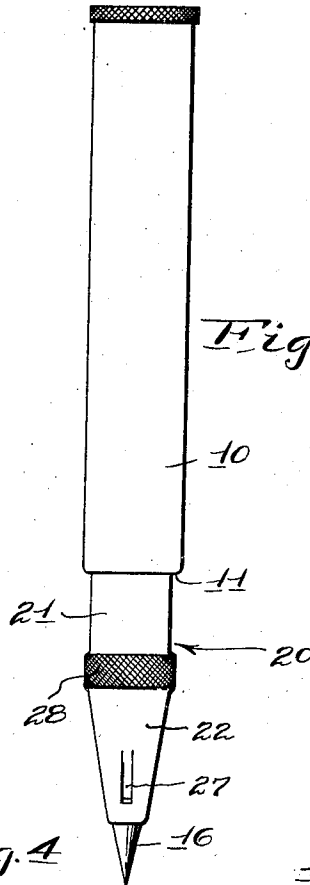


Fig. 4

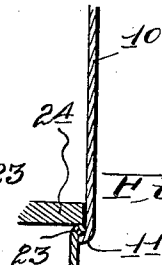
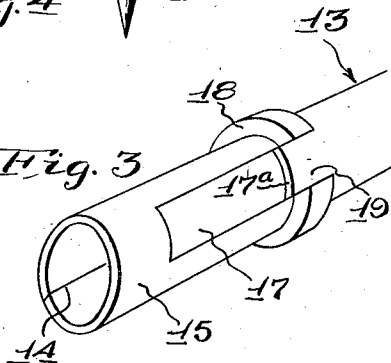


Fig. 3



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To all whom it may concern:

Be it known that I, FERDINAND KAISER, a citizen of Germany, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Pencil, of which the following is a specification.

My invention relates to improvements in pencils.

Its object is to provide a simple, durable and inexpensive pencil, adapted to readily receive supplies of lead sections and designed to quickly and easily eject a used section and replace the same with a fresh one.

A further object is to provide a device of this nature, designed so that the section of lead, in use, is firmly secured.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawings Figure 1 is an enlarged central longitudinal sectional view of my improved pencil; Fig. 2 is an elevation thereof; Fig. 3 is a perspective view in detail showing one end of the tubular magazine, and Fig. 4 is a view illustrating an alternate structure.

In the drawings, I have used the reference numeral 10 to indicate a barrel, one end thereof being turned inwardly to form an annular flange 11. Near the opposite end of the barrel 10, a washer 12 is soldered or otherwise secured to the inner wall of the barrel 10 and is similarly secured to a tube or magazine 13 passing axially through a bore in said washer 12. Said tube 13 lies flush, or substantially so, with the end of the barrel 10 adjacent said washer 12, but projects considerably beyond the flanged end 11 of the barrel 10. The extremity of this projecting end of the tube 13 is slit at 14 and slightly contracted to form a holder 15 to yieldingly grip lead sections 16 inserted therein. Opposite the slit 14 and near the end of the tube 13 is a slot 17 and at the inner end of said slot is a ring 18 rigidly embracing the tube, said ring being cut away at 19 to form a recess or way, equal in width to that of the slot 17, for purposes as will soon appear. A hollow tip 20 having a cylindrical base section 21 and a tapered section 22 incloses the end of the tube 13 projecting beyond the flanged end 11 of the barrel 10. The section 21 of the tip slides

within the flange 11 on the barrel and an outwardly projecting flange 23 on said section slides within the bore of the barrel. These flanges form coacting stops to prevent the removal of said tip 20 from the barrel 10. The reduced end 22 of the tip 20 slidably receives the end of the tube 13. Secured within the section 21 of said tip 20 (Fig. 1) or abutting thereagainst (Fig. 4) is a washer 24, the bore of which loosely receives the tube 13. A spring 25 is coiled about said tube 13 and interposed between said washer 24 and a shoulder 26 fixed upon the tube 13. This spring 25 yieldingly holds the tip 20 in normal position wherein the flanges 11 and 23 abut and the reduced end of the tip 20 lies flush with the inclosed extremity of the tube 13. A yielding finger 27, cut from the wall of the tip 20, is turned inward so as to project through the slot 17 in the tube 13, when the tip 20 is in normal position. This finger passes rearwardly in the slot 17 when the tip 20 is telescoped into the barrel 10 against the action of the spring 25, and near the end of such movement of the tip 20, rides over the end 17^a of said slot 17 and into the way 19 in the ring 18 on the tube 13. Thus, it will be seen that said finger 27 prevents the rotation of the tip 20 with respect to the barrel 10, by reason of its positions in the slot 17 and way 19. A knurled annular portion 28 on the tip 20 furnishes a grip for the fingers, by which the tip 20 may be easily manipulated against the action of the spring 25. Said spring 25 serves, in the absence of resistance, to return the tip 20 to normal position. The sharpened lead sections 16 are inserted, point first, in the mouth 13^a of the tube 13 and fall by gravity therein, the first lead being shifted by the tip 20 into operable position within the holder 15 as shown in Fig. 1. The finger 27 holds the lead 16 against backward movement and, together with the holder 15, firmly secures the lead 16 in position for use. To supply a fresh lead to the holder, it is only necessary to press the tip 20 inward. During this operation, the finger 27 is lifted from the slot 17 into the way 19, thus allowing the second lead to fall, by gravity, to a point within the tube 13 ahead of said finger 27. Upon releasing the tip 20, the spring 25 forces the same outward to normal position. During this return movement of said tip 20, the finger 27 first re-enters the slot 17, then abuts against the

second lead, then urges the same forward toward position within the holder 15 and finally seats the same within said holder. The used lead is ejected from the holder 15 by pressure from the new lead as it is advanced into position in said holder. A slip-cap 29 closes the top of the barrel 10 and also the mouth of the magazine 13.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A pencil comprising a barrel, a tubular magazine fixed axially therein and adapted to freely receive pointed leads, said magazine having a slot near the discharge end thereof and being split longitudinally and contracted slightly at said end to form a yielding holder for the leads, a hollow cone-shaped tip slidable at its large end within the barrel and at its small end upon said magazine, a spring for yieldingly holding the tip in extended position, and an inwardly inclined yielding finger cut from the wall of the tip and normally projecting through the slot in said magazine to hold a lead within the holder against backward movement, and being further adapted, upon the reciprocation of said tip, to engage the adjacent lead, eject the first lead from the holder and insert the second lead therein.

2. A pencil comprising a barrel, a tubular magazine fixed axially therein and adapted to freely receive pointed leads, said magazine having a slot near the discharge end thereof and being split longitudinally and contracted slightly at said end to form a yielding holder for the leads, a hollow cone-shaped tip slidable at its large end within the barrel and at its small end upon said magazine, a spring for yieldingly holding the tip in extended position, an inwardly inclined yielding finger on the tip normally projecting through the slot in said magazine to hold a lead within the holder against backward movement, and being further adapted, upon the reciprocation of said tip, to engage the adjacent lead, eject the first

lead from the holder and insert the second lead therein, and a removable cap fitted in the end of the barrel opposite said tip and designed to close the mouth of the magazine.

3. A pencil comprising a barrel, a tubular magazine fixed axially therein and adapted to freely receive pointed leads, said magazine having a slot near the discharge end thereof and being split longitudinally and contracted slightly at said end to form a yielding holder for the leads, a hollow cone-shaped tip slidable at its large end within the barrel and at its small end upon said magazine, a spring for yieldingly holding the tip in extended position, an inwardly inclined yielding finger cut from the wall of the tip and normally projecting through the slot in said magazine to hold a lead within the holder, against backward movement, and being further adapted, upon the reciprocation of said tip, to engage the adjacent lead, eject the first lead from the holder and insert the second lead therein, and a guide on the magazine to receive the finger, when the tip is retracted, said slot and guide serving to maintain the tip in fixed angular relation with respect to the barrel.

4. A pencil comprising a barrel, a tube fixed axially within the barrel, a tip slidable at one end in the barrel and at its other end on the tube, said tube being adapted to slidably receive a series of lead sections, means on the tip arranged to engage the leads within the tube and advance the same therein and a spring within the barrel adapted to yieldingly hold the tip in extended position, whereby the lead engaging means on said tip is further caused to act as a stop for said leads.

5. A pencil comprising a barrel, a tube fixed axially within the barrel, a tip slidable at one end in the barrel and at its other end in the tube, said tube being adapted to slidably receive a series of lead sections and means on the tip arranged to engage the leads within the tube and advance the same therein.

In testimony whereof, I have signed my name to this specification.

FERDINAND KAISER.