Oct. 13, 1931. F. SCHROEDER ET AL 1,827,619

PENCIL

Filed May 24, 1930

Fig. 1.

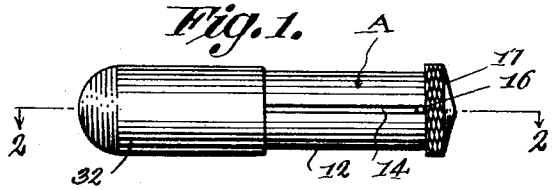


Fig. 2.

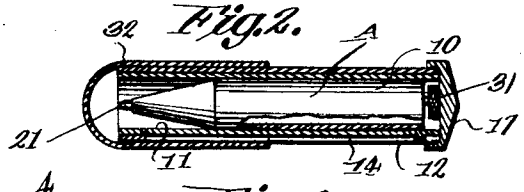


Fig. 3.

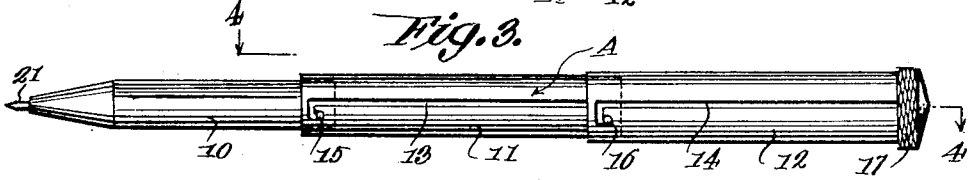


Fig. 4.

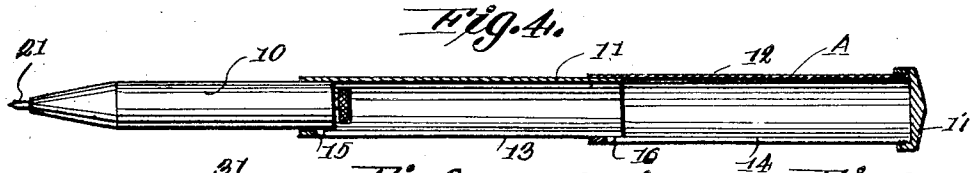


Fig. 5.

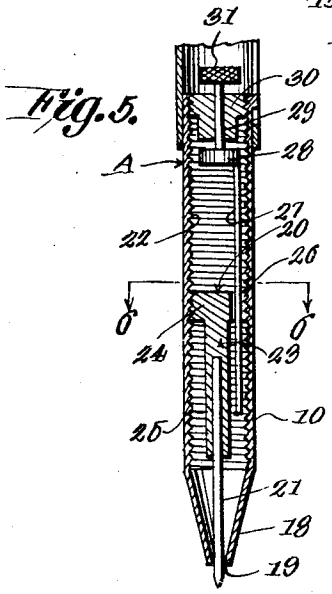


Fig. 6.

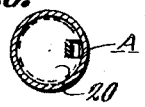


Fig. 7.

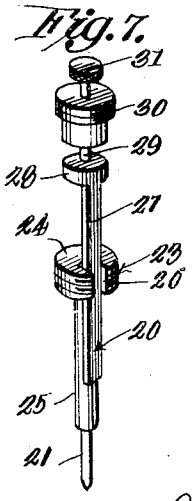


Fig. 8.

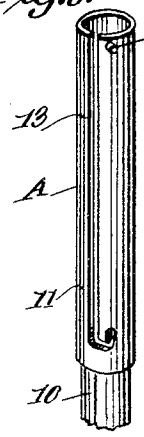
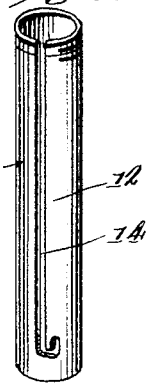


Fig. 9.



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1,827,619

UNITED STATES PATENT OFFICE

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PENCIL

Application filed May 24, 1930. Serial No. 455,391.

This invention appertains to pencils of the so-called automatic type and has for one of its primary objects the provision of an automatic pencil which can be collapsed or folded so as to occupy a minimum amount of space in the pocket and which can be extended to the length of a full size pencil for writing purposes.

Another important object of our invention is the provision of a collapsible automatic pencil embodying a main barrel section carrying the lead feed mechanism and telescoping barrel or handle sections with novel means for connecting the said sections together.

A further object of our invention is the provision of a novel means for advancing the lead in the main barrel section, said means embodying a minimum number of parts and being positive in operation and permitting the actuation thereof when the pencil is in its collapsed position.

A still further object of our invention is to provide a collapsible automatic pencil of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a side elevation of our improved pencil showing the same in its collapsed position;

Figure 2 is a longitudinal section through the same taken on the line 2—2 of Figure 1 looking in the direction of the arrows;

Figure 3 is a side elevation of our improved pencil showing the same in its extended form with the closing cap removed;

Figure 4 is a longitudinal section through the pencil taken on the line 4—4 of Figure 3 looking in the direction of the arrows;

Figure 5 is an enlarged longitudinal section through the forward end of the pencil showing the lead advancing mechanism in the main barrel section;

Figure 6 is a detail transverse section through the main barrel section taken on the line 6—6 of Figure 5 looking in the direction of the arrows;

Figure 7 is a detail perspective view of the lead advancing mechanism removed from the barrel;

Figure 8 is a detail fragmentary perspective view showing the intermediate barrel section connected with the main barrel section, and

Figure 9 is a detail perspective view of the end barrel section.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates our improved pencil which comprises a main barrel section 10, an intermediate barrel section 11 and an end barrel section 12. The barrel sections 11 and 12 are in the nature of sleeves and the barrel section 11 telescopes within the barrel section 12, while the main barrel section 10 telescopes within the intermediate barrel section 11, forming a compact device when the three barrel sections are in their collapsed condition, as shown in Figures 1 and 2 of the drawings. When the sections are extended a full sized pencil is presented, as shown in Figures 3 and 4 of the drawings. The sections are connected together by means of bayonet slot joints and the intermediate barrel section 11 is provided with a bayonet slot 13 while the end barrel section is provided with a similar bayonet slot 14. The slots 13 and 14 open out through the rear ends of the sleeve or barrel sections and have their angular portions arranged innermost. The main barrel section 10 carries a radially extending pin 15 and the sleeve or intermediate barrel section 11 is slipped over the forward end of the main barrel section 10 with the pin 15 in the bayonet slot 13. The rear end of the intermediate section 11 carries a pin 16 and the end barrel section 12 is slipped over the forward end of the main and intermediate barrel sections with the pin 16 in the slot 14. When the end barrel section 12 is

slipped over the intermediate barrel section 11, the outward movement thereof is limited by the pin 16 and this section closes the bayonet slot 13 and forms means for limiting the sliding movement of the pin 15 in the bayonet slot 13. The outer end or rear end of the end barrel section 12 receives a threaded closure cap 17 which closes the bayonet slot 14 and holds the various sections in their assembled position against accidental withdrawal one from the other.

The main barrel section 10 carries a novel mechanism 20 for advancing the lead and this mechanism will now be described. It is to be noted that the forward end of the main barrel section 10 is contracted as at 18 and forms a guide outlet 19 for the lead 21. The opposite end of the main barrel section 10 is open and this barrel is provided with internal threads 22 substantially throughout its entire length. Threaded into the barrel 10 is the carrier 23 for the lead 21 and this carrier includes a cylindrical threaded base 24 and a sleeve 25 which can be of any construction to frictionally hold the lead 21. The base 24 of the lead carrier 23 is provided with a slot 26 which slidably receives a flat operating rod 27 formed on or secured to the disk 28. This disk is keyed or otherwise secured to an operating shaft 29 rotatably mounted in a closing plug 30 threaded into the inner end of the barrel. The outer end of the shaft 29 is provided with a manipulating thumb piece 31 for facilitating the turning of the shaft. It can be seen that when the thumb piece is turned, the operating rod 27 will be turned therewith, thus turning the lead carrier 23 which will thread the same forwardly or rearwardly of the barrel according to the direction in which the thumb piece is turned.

In operation of the mechanism the thumb piece 31 is turned so as to advance the carrier 23 to the contracted end 18 of the main barrel 10 and the lead 21 is inserted therein. The thumb piece 31 is now turned the reverse direction until just sufficient lead is protruding from the barrel for writing purposes. It is obvious that this thumb piece can now be turned to advance the lead as the same is used.

When the pencil is in its collapsed condition a closure cap 32 can be provided for the front end thereof so as to complete the pencil and to protect the lead against breakage. When it is desired to advance the lead, it is merely necessary to collapse the pencil, as shown in Figure 2 of the drawings, and then remove the closure cap 17 whereupon the thumb piece 31 can be readily grasped for turning in either direction.

When it is desired to extend the pencil, the section 12 is pulled outward and when the same reaches its limit of sliding movement the same will pull out on the intermediate section 11. These sections are then turned so as to position the pins 15 and 16 in the angular portions of the bayonet slots 13 and 14. When it is desired to again collapse the pencil, the sections are again turned until the pins aline with the elongated portions of the bayonet slots and the sections are then pushed inward until the same assume their collapsed position.

Changes in details may be made without departing from the spirit or the scope of this invention, but:

What we claim as new is:

1. An automatic collapsible pencil comprising a main barrel section, an intermediate barrel section, and an end barrel section, the main barrel section telescoping within the intermediate barrel section and the intermediate barrel section telescoping within the end barrel section, the intermediate and end barrel sections being provided with longitudinally extending bayonet slots opening out through the outer ends thereof, means carried respectively by the main barrel section and the intermediate barrel section for engaging in said bayonet slots, the end barrel section forming a stop for the bayonet slot in the intermediate barrel section, and a closure cap for the end barrel section forming a stop for the bayonet slot of said end section.

2. In an automatic pencil, a barrel having its forward end contracted to provide a lead guide opening and its rear end open, the barrel being internally threaded substantially throughout its entire length, a lead carrier in said barrel including a threaded base engaging said threads and a sleeve for receiving the lead, the base having a slot therein, a closure plug for the rear end of the barrel, a shaft rotatably carried by the plug, a manipulating thumb piece for the shaft arranged externally of the barrel, a disk on the inner end of said shaft, and a rod eccentrically secured to the disk and slidably received in the slot in the base of the lead carrier.

In testimony whereof we affix our signatures.

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ALBERT RADDATZ.