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PENCIL

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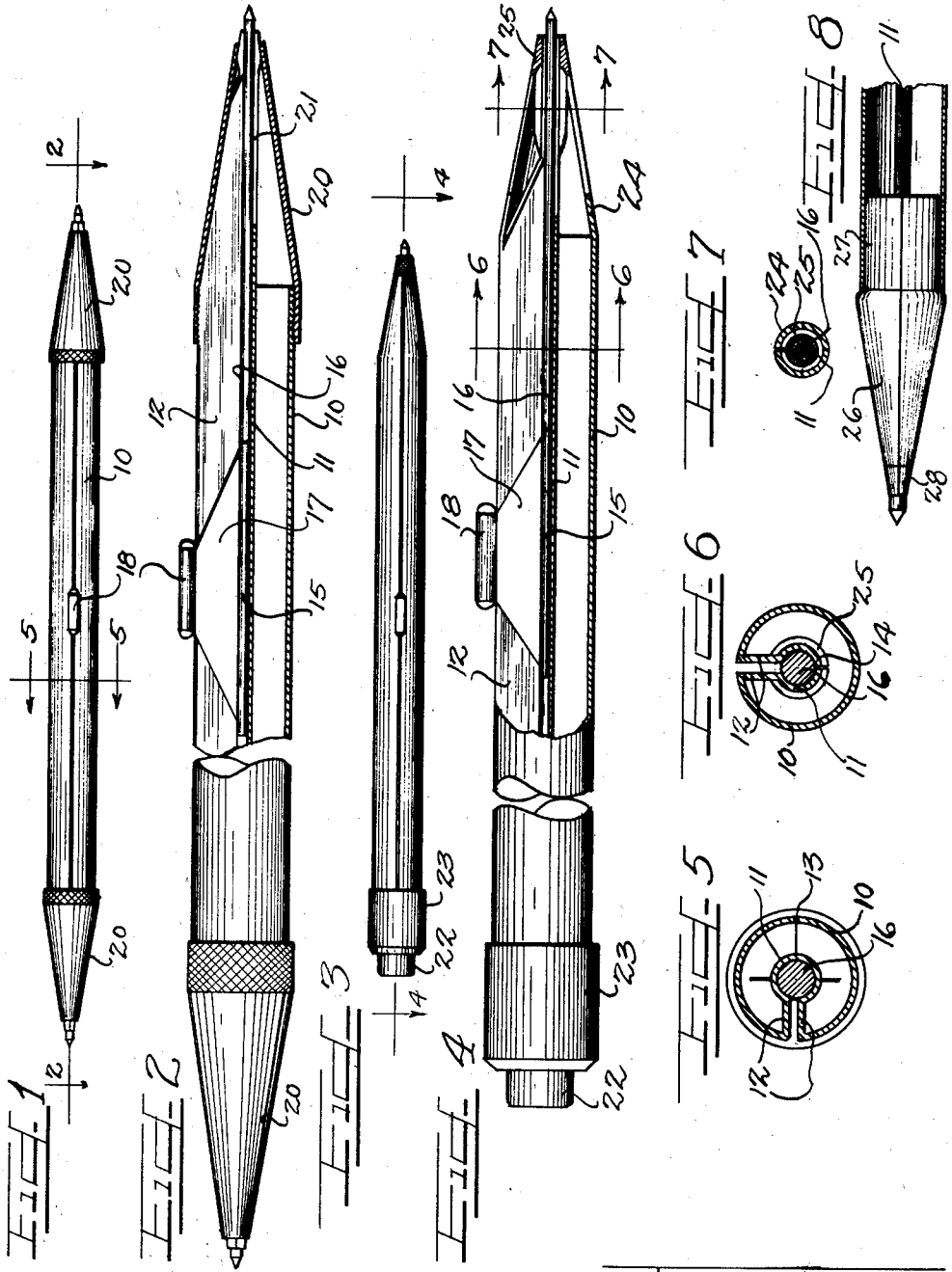


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

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UNITED STATES PATENT OFFICE.

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PENCIL.

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This invention relates to a pencil, and particularly to that type of pencil wherein a lead is adapted to be fed forward through the pencil point as consumed.

It is an object of this invention to provide a pencil shell and lead guide formed from one piece of sheet metal drawn or formed into the desired shape.

It is also an object of this invention to provide a lead advancing slide having a knob projecting above the surface of the pencil shell for manual movement thereof.

It is a further object of this invention to provide a mechanical pencil having an integral shell and lead guide with a conical point, together with means for applying increased friction to the lead at the point.

It is another object of this invention to provide a simple mechanical pencil and to eliminate complicated feeding mechanisms, thereby providing a mechanical pencil of inexpensive construction.

Other and further important objects of this invention will be apparent from the disclosures in the drawings and specification.

The invention (in a preferred form) is illustrated on the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a plan view of a double ended pencil embodying one form of the device of this invention.

Figure 2 is an enlarged view thereof partly in section on the line 2—2 of Figure 1.

Figure 3 is a plan view of another form of the device of this invention.

Figure 4 is an enlarged view thereof partly in section on the line 4—4 of Figure 3.

Figure 5 is an enlarged cross section on the line 5—5 of Figure 1.

Figure 6 is a cross section on the line 6—6 of Figure 4.

Figure 7 is a cross section on the line 7—7 of Figure 4.

Figure 8 is an enlarged detail section illustrating a modified cap structure.

As shown on the drawings:

The straight tubular shell 10 of either modification is drawn or otherwise formed from sheet metal, a central lead guide 11 being formed integral therewith with spaced re-entrant portions 12 connecting the tube and guide to form a passageway for the lead propelling mechanism. As the entire structure as outlined above is made from a flat strip of sheet metal, the resulting joint may be located on the shell 10 opposite the re-entrant portions 12, as shown at 13 in Figure 5, and soldered together to produce a continuous shell, or the joint may be located on the inner lead guide 11 opposite the re-entrant portions, in which case the joint is left open to give a spring gripping effect to the lead guide, this type of joint being indicated by the numeral 14 in Figure 6. A lead propelling slide 15 fits the lead guide 11 to push the lead 16 out as needed. The slide has a shank 17 projecting through the space between the re-entrant members connecting the shell and lead guide and terminating in a knob or button 18 above the surface of the shell for manual operation of the slide. The construction of the cylindrical part of the shell and lead guide is the same in both illustrated forms of the device of this invention.

The double ended pencil of Figures 1 and 2 involves separate conical caps 20 screwed onto the shell 10. The lead guide 11 is carried to the tip of the conical caps and is swaged to a taper adapted to be compressed by screwing on the conical ends to cause the guide 11 to grip the lead. To facilitate contraction of the guide it is slotted as at 21 for a short distance from the end, if the shell is formed with the joint 13 on the exterior thereof instead of on the guide. The reentrant members 12 are carried forward from the end of the shell and tapered off to fit within the caps. It will be evident that with this construction slacking off the caps 20 loosens the grip of the guide on the lead and allows projection thereof.

The single ended pencil of Figures 3 and 4 is provided with an eraser 22 and holder 23 at one end. The other end 24 is drawn down to a conical point, the lead guide, as in the previous case, extending to the tip of the cone. A split spring bushing 25 is inserted around the end of the lead guide and inside the conical shell to resiliently contract the lead guide at the tip to provide sufficient friction to hold the lead during use.

In Figure 8 I have shown a construction wherein a conical or tip cap 26 has a cylin-

drical portion 27 engaged inside the shell having a springing frictional engagement therewith. The outer end 28 of said tip frictionally engages the end of the tube to hold the lead gripped therein.

It will be apparent from the foregoing description that this invention provides a pencil wherein the lead is manually propelled and wherein it is resiliently gripped while the pencil is in use. The pencil is as simple as possible in construction and correspondingly economical in manufacture, and there are no mechanical parts subject to damage.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

In a manually operated pencil, a sheet metal shell, an apertured conical end enclosing means longitudinally adjustable thereon, spaced parallel reentrant portions of the shell defining a longitudinal slot therein and a split lead-guiding tube, the said reentrant portions extending beyond the shell and through the aperture in the conical end enclosing means as a split tube having tapered upstanding supporting fins within the enclosing means, and means slidable in the tube for projecting a lead therefrom.

In testimony whereof I have hereunto subscribed my name.

NELS P. SJOBRING.