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PENCIL LEAD CONNECTING MECHANISM

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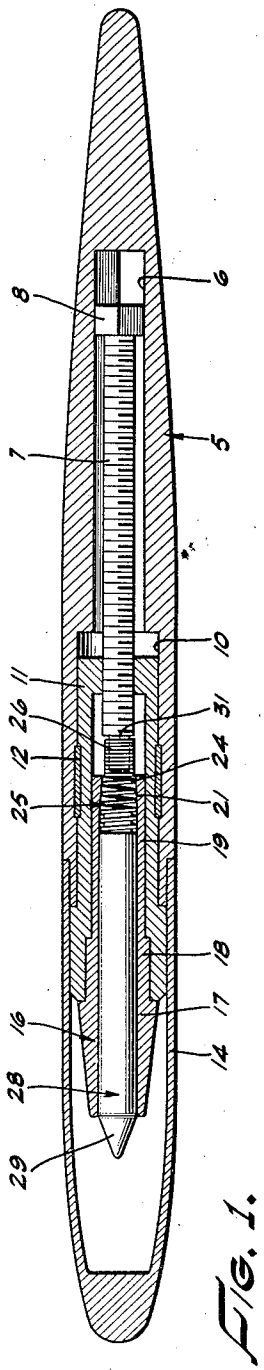

FIG. 1.

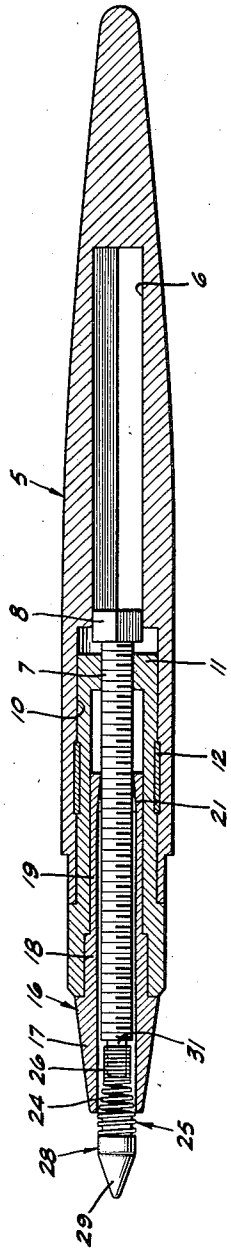

FIG. 2.

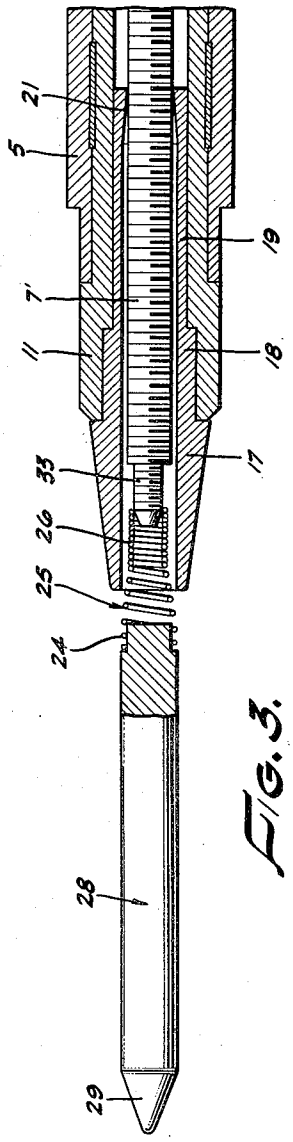

FIG. 3.

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PENCIL LEAD CONNECTING MECHANISM

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5 Claims. (Cl. 120—18)

This invention relates to cosmetic devices such as eyebrow pencils, and particularly to a reload mechanism for this type of pencil.

Eyebrow pencils of the type wherein a soft crayon is mounted on a mechanism which protracts and retracts the crayon by a threaded screw are well-known, reference being made to co-pending U. S. application, Ser. No. 330,696, filed January 12, 1953, now abandoned. The present pencil provides a protracting and retracting mechanism for the eyebrow pencil lead of the normal type utilizing a noncircular type of head for a screw which is rotatable and threaded in a fixed disc. In this manner, the screw is moved longitudinally of the holder to advance and retract the eyebrow lead.

The present invention is directed to a mechanism attached to the base of the lead or crayon, which permits the automatic attachment of the lead or crayon to the end of the advancing and retracting screw. This attaching mechanism uses the minimum of material and is economical, sturdy, and positive in its attachment to the crayon controlling mechanism. It also provides a flexibility between the advancing screw and the crayon which minimizes breakage of the soft lead or crayon.

The principal object of the invention, therefore, is to provide an eyebrow pencil adaptable for refills.

Another object of the invention is to facilitate the connection between a refill crayon for an eyebrow pencil and its protracting and retracting mechanism.

A further object of the invention is to provide an improved mechanism for attaching a refill lead element to the lead advancing mechanism of an eyebrow pencil.

Although the novel features which are believed to be characteristic of this invention will be pointed out with particularity in the appended claims, the manner of its organization and the mode of its operation will be better understood by referring to the following description, read in conjunction with the accompanying drawings, forming a part hereof, in which:

Fig. 1 is a cross-sectional view of an eyebrow pencil embodying the invention.

Fig. 2 is a cross-sectional view of the pencil shown in Fig. 1 with the mechanism in an extreme advanced position, and

Fig. 3 is a cross-sectional view of an eyebrow pencil showing a modification of the invention shown in Figs. 1 and 2.

Referring now to Figs. 1 and 2 particularly, the pencil shown has a tapered cylindrical casing **5** having a broached square internal opening **6**. In the opening **6**, is positioned a threaded screw **7** having a square end **8** longitudinally movable in the opening **6**. Fitted within a larger cylindrical opening **10** of the casing **5**, is a cylindrical sleeve **11** maintained therein by a ring **12** which is fitted in notches in the internal surface of opening **10** and the outer surface of the sleeve **11**. A cap member **14** slides over a portion of the casing **5**.

Fitted within the sleeve **11**, is a crayon holding tube member **16** having an externally tapered front end **17** and

two cylindrical portions **18** and **19**. The opening at the end of the section **19** is slightly internally tapered, as shown at **21**. This taper is provided to firmly hold the larger diameter section **24** of a spring **25**, which also has a smaller diameter section **26**. The larger diameter section **24** of the spring **25** has a greater pitch than the smaller diameter section **26**. Threaded with the section **24** of the spring **25** is the end of an eyebrow crayon **28**, which has a pointed tip **29**. The end of the screw **7** has a plastic tip **31** with a slight taper at the end of the tip.

To attach the refill, which consists of the crayon **28** and the spring **25** to the section **31** of the screw **7**, it is only necessary to insert the refill within the member **16** until the spring section **24** is held firmly by the tapered portion **21** of member **16**. The member **16** and crayon are then inserted into the pencil, as shown in Fig. 1, and the casing **6** is rotated. This rotation of casing **5** will rotate screw **7** and tip **31** and will thread the small diameter section **26** of the spring **25** on the tip **31** and a firm connection between spring and screw is thereby accomplished. When the crayon is used to the extent shown in Fig. 2, it is simply unscrewed from the tip **31** to release it. The tight pitch of the threads of the spring **25** for the section **26** provides an attachment which does not loosen during protraction and retraction of the crayon **28**. It has also been found that variation in diameter of the two sections of the spring and the difference in pitch thereof provide a flexibility between the screw and lead **28** which minimizes breakage during the advancing and retraction of the lead.

As mentioned above, not only is this an extremely simple, sturdy, and economical mechanism for attaching a refill lead to the lead moving mechanism, but it also provides the desired flexibility between the two units with one element.

Referring now to Fig. 3, the tip of screw **7'** has been provided with a threaded tip **33**, the threads having the same pitch as section **26** of spring **25** so that the spring may be threaded thereon by rotation of casing **5**. The plastic tip **31** may or may not be threaded, since the section **26** of spring **25** will form light threads during the connecting operation.

I claim:

1. A connecting mechanism between the lead of a pencil and the protracting and retracting mechanism of said pencil comprising a tube through which a pencil lead is movable axially, said tube having an internally tapered end portion, and a resilient interconnecting unit having a large diameter section and a smaller diameter section and slidably positioned within said tube, said large diameter section being greater than and said smaller diameter section being smaller than the smallest inside diameter of said tube internally tapered end portion whereby said unit is firmly held by said tapered end portion, said smaller diameter section projecting outwardly of said tube through said tapered end portion when said larger diameter section is held firmly by said tapered end portion, whereby said unit is attachable to said protracting and retracting mechanism by rotation of said mechanism when said unit is held firmly by said tapered end portion.

2. A connecting mechanism between a protracting and retracting screw and a crayon movable by said screw comprising a tube through which said crayon is movable axially, said tube having an internally tapered end portion, and a spring having a large diameter section and a smaller diameter section and slidably positioned within said tube, said large diameter section being greater than and said smaller diameter section being smaller than the smallest inside diameter of said tube internally tapered end portion whereby said spring is firmly held by said tapered end portion, said smaller diameter section projecting outwardly of said tube through said tapered end portion when said large diameter section of said spring is held firmly

by said tapered end portion, said screw having a tip on which is threadable said smaller diameter section of said spring by rotation of said screw when said spring is held firmly by said tapered end portion of said tube.

3. A connecting mechanism in accordance with claim 1, in which said resilient unit is a coil spring, the large diameter section thereof having a greater pitch than its smaller diameter section, the portion of said mechanism attachable to said spring being plastic on which threads are formed by the smaller diameter section of said spring.

4. A connecting mechanism in accordance with claim 2, in which said tip has threads thereon and on which said smaller diameter section of said spring is threadable by rotation of said screw with respect to said mechanism.

5. A connecting mechanism in accordance with claim 2, in which said tip is of plastic, said smaller diameter section of said spring forming threads thereon by rotation of said screw with respect to said mechanism.

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