Oct. 3, 1967 J. B. OSTROWSKI 3,344,464

PENCIL FERRULE

Filed March 31, 1964

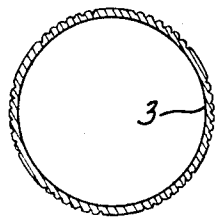

FIG-2

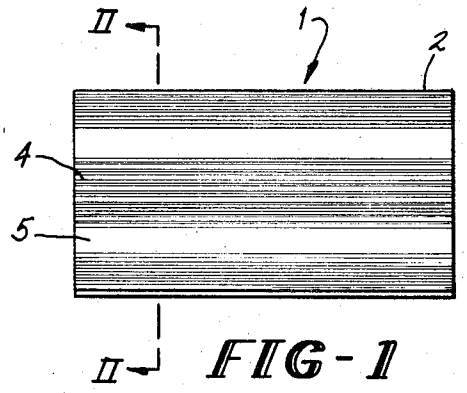

FIG-1

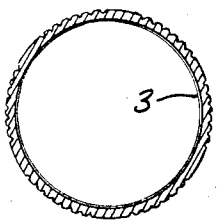

FIG-4

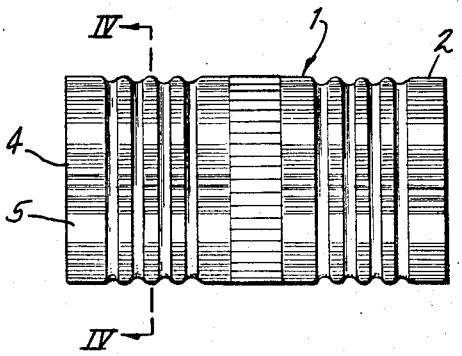

FIG-3

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PENCIL FERRULE

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6 Claims. (Cl. 16—108)

The present invention relates to new and improved aluminum pencil ferrules.

It has been known for a long period of time to provide one end of pencils with a small eraser. The eraser is usually secured thereto by means of a hollow metal cylinder which is fitted to the pencil so that the rubber eraser forms an extension thereof. The metal cylinder is termed a pencil ferrule and is conventionally made of, for example, brass or aluminum.

The more widely used pencil ferrules are made from brass in view of their increased strength over the aluminum. Aluminum pencil ferrules, while providing excellent visual characteristics similar to the brass, have not been too widely used in view of their poor strength characteristics, that is, one may readily crush the hollow aluminum pencil ferrule between two fingers of one hand. This undesirable characteristic causes considerable waste in subsequent manufacturing processes, adds to the cost and limits the desirability of using aluminum for this application.

It is possible to increase the strength of the aluminum pencil ferrule by alloying the aluminum with higher strength metals or other costly process operations; however, these are undesirable in view of added cost attendant upon the alloying additions or additional costly operations.

It is therefore an object of the present invention to provide a simple and inexpensive means for increasing the strength of aluminum pencil ferrules.

It is a further object of the present invention to provide a means as above which does not detract from the desirable characteristics of the aluminum pencil ferrule.

It is a still further object to provide a new and improved aluminum pencil ferrule which readily overcomes the foregoing disadvantages of the art while retaining the essential desirable visual characteristics.

Further objects and advantages of the present invention will appear hereinafter.

In accordance with the present invention, it has been found that the foregoing objects and advantages may be readily accomplished and an improved aluminum pencil ferrule provided which comprises a hollow cylinder of aluminum having a plurality of longitudinal serrations on the outer face thereof, said serrations covering the major portion of the outer face of said ferrule and extending longitudinally over the entire surface thereof.

It has been found, surprisingly and unexpectedly, that by the simple expedient of providing longitudinal serrations on the outer face of the aluminum pencil ferrule, as shown in the appended drawings, all of the foregoing objects and advantages of the present invention may be readily accomplished.

The present invention will be more readily apparent from a consideration of the appended drawings in which:

FIGURE 1 represents a plan view of a pencil ferrule of the present invention;

FIGURE 2 represents a cross section taken along the line II—II of FIGURE 1;

FIGURE 3 represents a plan view of the pencil ferrule of the present invention after subsequent processing; and

FIGURE 4 shows a cross section taken along line IV—IV of FIGURE 3.

Referring to the drawings, an aluminum pencil ferrule

1 is shown having an outer face 2 and an inner face 3. The outer face has a plurality of longitudinal serrations 4 covering the major portion of said outer face and extending longitudinally over the entire surface thereof. The longitudinal serrations are a plurality of discrete longitudinal grooves or embossments which run from end to end, i.e., lengthwise all the way from the front most portion of the ferrule to the rear most portion of the ferrule. If desired, the serrations may cover the entire outer face of the ferrule. It is critical only that the longitudinal serrations cover a major portion of the outer face of said ferrule. This is essential in order to obtain the advantages of the present invention.

In the embodiment shown in FIGURE 1 there are unserrated portions 5 appearing between each group of serrations. As mentioned above, the serrations may cover the entire outer face or only the major portion thereof having unserrated portions.

The serrations may be formed by any desired method, for example, knurling, embossing, etc.

Similarly, the depth and shape of the serrations is not especially critical. In the preferred embodiment, as shown in the cross-sectional drawings, the serrations are V-shaped and extended in depth from 10 to 70 percent of the thickness of the aluminum. In the preferred embodiment from 40 to 75 serrations are provided per inch of 90° V-shaped design having a depth of at least 0.001 inch.

FIGURE 3 shows the pencil ferrule of FIGURE 1 after form rolling, i.e., after the pencil ferrule is form rolled to provide the common configuration used in pencil ferrules. It is noted that the particular design embodied in FIGURE 3 is only representative and innumerable variations thereof may be conceived.

As indicated hereinafter, the pencil ferrule of the present invention provides numerous advantages over those conventionally used. The pencil ferrule of the present invention may be utilized with conventional aluminum alloys used for pencil ferrules. The conventional pencil ferrules, for example, have strength characteristics using a crush test of 41.6 pounds to crush in the vertical position and 12 pounds to crush in the horizontal; whereas, the identical alloy in a serrated pencil ferrule in accordance with the present invention and illustrated in FIGURE 1 has greatly increased strength characteristics, i.e., using the same crush test required 84.4 pounds to crush in the vertical position and 14 pounds to crush in the horizontal.

Additional advantages inherent in the pencil ferrule of the present invention are the improved mechanical properties thereof. In other words, conventional aluminum pencil ferrules in addition to being very susceptible to mechanical damage, have poor mechanical properties, such as, being out-of-round and having diameter variations from end to end and having poor edges. The pencil ferrule of the present invention overcomes these poor mechanical properties and rarely is out of round and does not have diameter variations caused by clipping or piercing in conventional methods.

This invention may be embodied in other forms or carried out in other ways without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered as in all respects illustrative and not restrictive, the scope of the invention being indicated by the appended claims, and all changes which come within the meaning and range of equivalency are intended to be embraced therein.

What is claimed is:

1. A high strength aluminum pencil ferrule comprising a hollow cylinder of aluminum having a plurality of longitudinal serrations on the outer face thereof, said serra-

tions covering the major portion of the outer face of said cylinder and extending longitudinally over the entire surface thereof.

2. A high strength aluminum pencil ferrule comprising a hollow cylinder of aluminum having a plurality of discrete longitudinal grooves on the outer face thereof running from end-to-end, said grooves covering the major portion of the outer face of said cylinder.

3. A high strength ferrule according to claim 1 wherein said serrations are V-shaped.

4. A high strength ferrule according to claim 1 wherein said serrations extend in depth from 10 to 70 percent of the thickness of the aluminum.

5. A high strength ferrule according to claim 1 wherein from 40 to 75 serrations are provided per inch.

6. A high strength ferrule according to claim 1 wherein from 40 to 75 V-shaped 90° serrations of at least 0.001 inch in depth are provided per inch.

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