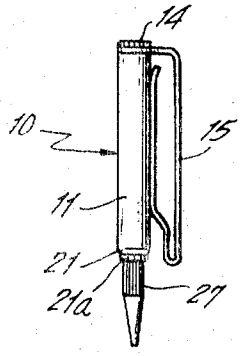
Sept. 30, 1969 J. AVERSA 3,469,927

MINIATURIZED TELESCOPIC MARKING INSTRUMENT

Filed Nov. 6, 1967

FIG. 1



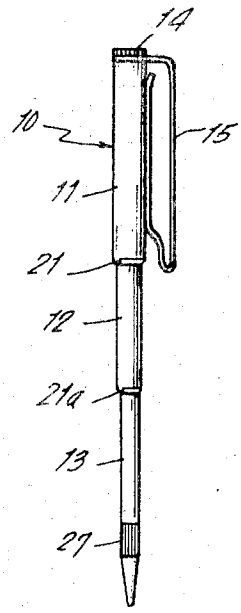
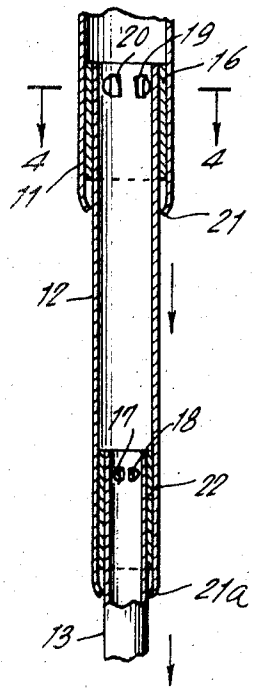


FIG. 2

FIG. 3



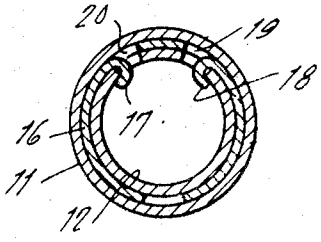


FIG. 4

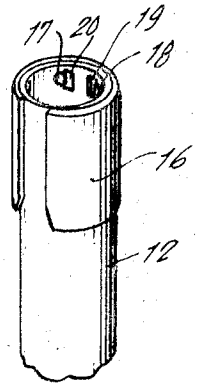


FIG. 5

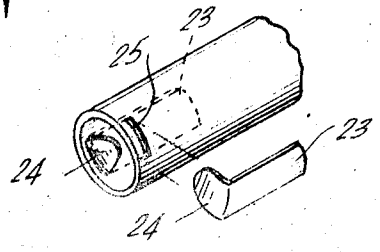


FIG. 6

PRIOR ART

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MINIATURIZED TELESCOPIC MARKING INSTRUMENT

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U.S. Cl. 401—95 3 Claims

ABSTRACT OF THE DISCLOSURE

A miniaturized telescopic marking instrument in which smooth frictional movement between adjacent telescoping segments is provided by a one piece split sleeve of simplified construction.

Background of the invention

Presently known miniaturized marking instruments consist of a series of short tubular segments telescopically fitted together to form a body portion and a marking tip which may be a pen or pencil brush or belt body. The body portion can be retracted to occupy a minimum amount of space or extended to provide a comfortable writing instrument. In both the retracted and extended position it is important that the segments remain in their adjusted position and that there is no play or movement therebetween. In addition, it is highly desirable that the sliding motion of the segments be, free, smooth, free from chatter yet firm enough to hold the elements in their adjusted position.

Prior art devices have attempted to control the movement between the tubular segments comprising the body portion of miniaturized marking instruments by various structures. However, these devices have been either expensive to manufacture or complicated, requiring much labor to assemble. Thus in United States Patent No. 3,174,461 issued Mar. 23, 1965, the tubular elements are themselves of an inside and outside diameter such that a smooth telescopic action can be achieved. Such a structure requires close manufacturing tolerances and eventually causes wear on the outer surface of the smaller elements. If the tubular members are plated the result of wear would destroy the ornamental appearance of the instrument.

Still another prior art device, hereinafter more fully described, employs a plurality of shims disposed at one end of the tubular member and held therein by inwardly extending ears. This construction is difficult to assemble and fragile.

Accordingly, it is an object of the present invention to provide a telescopic marking instrument which is simplified in structure while meeting all the requirements of such devices.

Another object of the present invention is to provide a telescopic marking instrument which lends itself to automated assembly techniques.

A further object of the present invention is to provide an inexpensive telescopic marking instrument.

Summary of the invention

In one preferred form the present invention consists of a body portion of short tubular members of decreasing outside diameters such that they fit together telescopically. A one piece thin split ring element is slipped over the inner end of each of the sliding tubular members and secured thereto by crimping. The opposite or free end of the tubular member is spun inwardly to prevent the split ring from being pulled out of the overlying tubular member. A marking tip is carried at the end of the smallest tubular member.

Description of the drawing

In the accompanying drawing, forming a part hereof:

FIGURE 1 is a view in side elevation of a complete embodiment of a miniaturized telescopic marking instrument in the retracted position,

FIGURE 2 is a view similar to FIGURE 1 in the extended position,

FIGURE 3 is a fragmentary view of the marking instrument shown in FIGURE 2 somewhat enlarged and partially cut away to show the interior structure thereof,

FIGURE 4 is a cross sectional view somewhat enlarged taken on line **4—4** in FIGURE 3 looking in the direction of the arrows,

FIGURE 5 is a fragmentary end view of one of the tubular telescopic members showing the construction thereof,

FIGURE 6 is a somewhat exploded view of a portion of a prior art device.

Description of the preferred embodiment

Referring to the drawing, and particularly to FIGURES 1 and 2, 10 indicates a miniaturized telescopic marking instrument such as a pencil, consisting of a body portion formed of telescopically interfitted tubular members **11, 12, 13.** The tubular members **11, 12, 13** are of a size such that they fit loosely one within the other and do not require a high degree of close manufacturing tolerances. Each of the tubular members **11, 12, 13** are preferably made of metal, but may also be made of some suitable plastic material.

The top most tubular member **11** is adapted to receive at one end thereof a small cap **14** which serves to secure a clip member **15** to the pencil body. The opposite end of the tubular member **11** is inwardly spun as indicated at **21** thereby bringing the inside diameter of the tubular member **11** at this point closer to the outside diameter of the tubular member **12** which is slideably fitted therein. The portion of the tubular member **12** which is carried within the tubular member **11** is provided at its upper end with a split ring member **16** best shown in FIGURES 4 and 5. The split ring member **16** is preferably made of brass or similar resilient metal and is of a thickness which will substantially compensate for the difference in diameters between the inside of the tubular member **11** and the outside of the tubular member **13.**

As shown in FIGURE 5, the split ring **16** is secured to the tubular member **12** by means of a punch whereby two ears **17, 18** are struck from the split ring **16** and folded inwardly against the inner surface tubular member **12** through openings **19, 20** punched therethrough. In this manner, the split ring member **16** is secured to the tubular member **12** while at the same time free to expand outwardly from the tubular member **12** and bear against the internal surface of the top tubular member **11** against which it rides. The split ring member **16** is preferably of a length of the order of ⅛ to ⅕ of the total length of the tubular member **12** to which it is attached so that a good bearing surface is provided which will prevent the tubular member **12** from wobbling within the member **11.**

As will be observed from FIGURE 3 when the member **12** is pulled out during the extension of the pencil, the split ring member **16** eventually abuts against the inwardly spun portion **21** of the top tubular member **11,** thereby preventing the tubular section **12** to which it is attached from being pulled out of the pencil body.

The tubular section **12** is similarly spun in at its end opposite the split ring as indicated at **21*a*** and for a similar purpose to that described in conjunction with the first tubular section **11.** The third tubular section **13** is also provided with a split ring **22** of the same construction as that of the split ring **16** and for the same purpose. The

two split rings **16**, **22**, serve to provide a smooth and adjustable telescopic operation between the tubular elements **11**, **12**, **13**, despite the fact that these elements do not fit over one another with close tolerances.

The split ring members **16** provide a more continuous bearing surface on the inside of the tubes into which they are received than that of the prior art device shown in FIGURE 6. The prior art device consists of an elongated arcuate member **23** having a normally disposed ear **24** secured thereto. The ear is received within a slot **25** cut near the top of the tubular member **26**. A second arcuate member (not shown) is usually inserted from the opposite side of the tubular member **26** and the said tubular member is inserted within the overlying tubular section while the arcuate members **23** are held in a compressed position by the person assembling the device. It will be apparent that if the pencil is extended sharply the ears **24** of the prior art structure can be sheared off and the entire device will become inoperative. In addition, the prior art device must be assembled by hand at considerble expense while the split ring structure of the present device can be applied automatically using normal punch press and feed procedures.

A small pencil element **27** is carried in the free end of the lower most tubular member **13** and is of a construction well known in the pencil art.

While the above description has been directed toward a telescopic pencil, it will be apparent to those skilled in the art that a ball point pen, crayon, brush, felt body or other marking instrument may be substituted for the pencil **27** without departing from the spirit of the present invention.

Having thus fully described the invention, what is

claimed as new and desired to be secured by Letters Patent of the United States is:

1. A miniaturized telescopic marking instrument comprising a plurality of telescopically loosely interfitting tubular members forming a body portion, a split ring of thin resilient material secured in an area between the free edges thereof around one end of at least one of the tubular members and disposed between said tubular member and an overlying tubular member to provide a smooth frictional contact therebetween, a cap on one end of the outermost tubular member and a writing tip carried by the innermost tubular member at the end of the writing instrument opposite the cap.

2. A marking instrument according to claim **1** in which each of the ring receiving tubular members are provided with spaced openings at one end thereof and the split ring has tabs struck therefrom and extending through the said openings to secure the rings to the tubular member,

3. A marking instrument according to claim **2** in which the split rings are of a length of the order of ⅛ to ⅕ of the total length of the tubular member to which it is secured.

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LAWRENCE CHARLES, Primary Examiner

U.S. Cl. X.R.

287—58; 343—901