

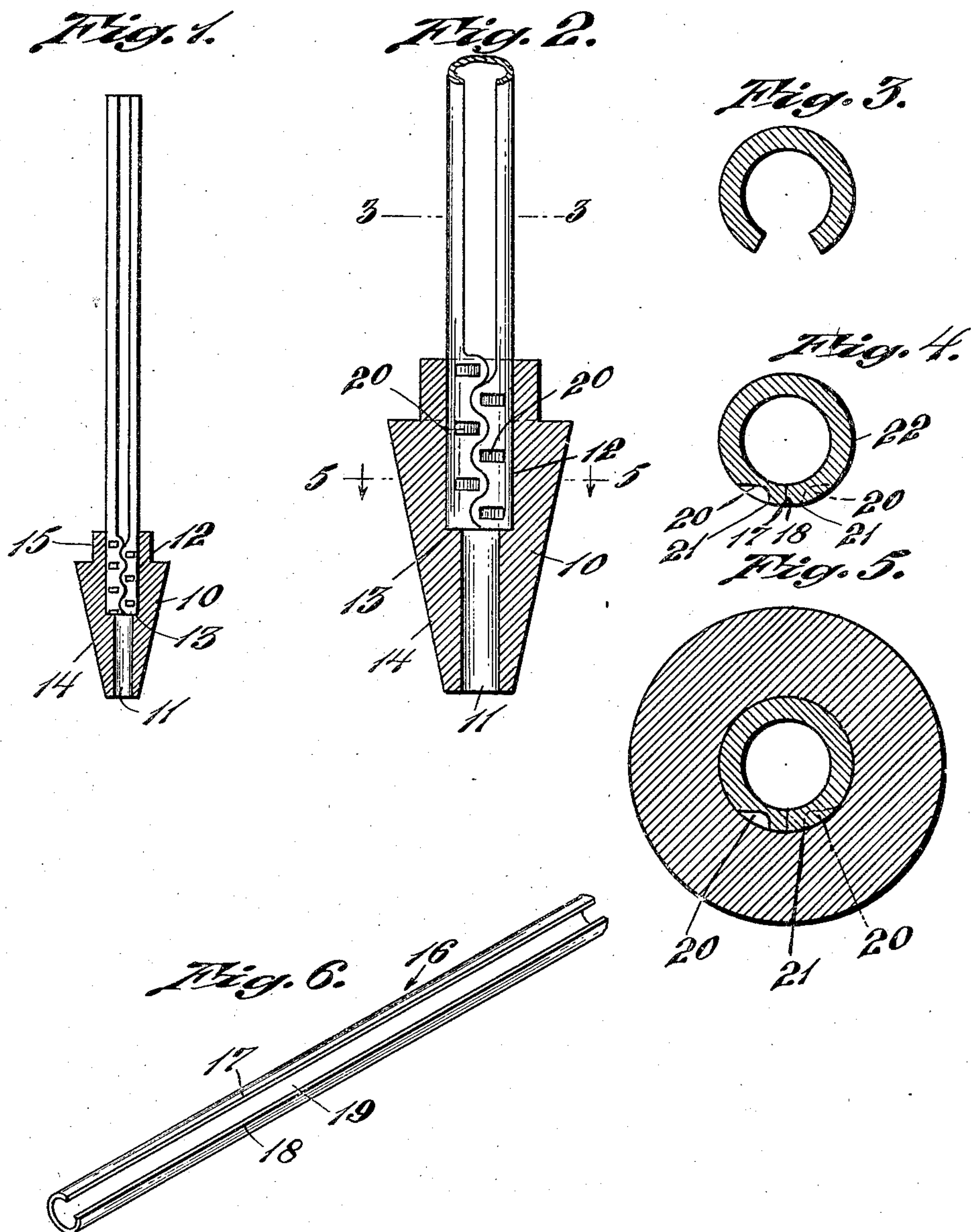
Feb. 28, 1939.

L. A. LANOIE

2,148,866

GUIDE TUBE FOR MECHANICAL PENCILS

Filed Dec. 20, 1937



INVENTOR.
Louis A. Lanoie
BY *Barlow & Barlow*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,148,866

GUIDE TUBE FOR MECHANICAL PENCILS

Louis A. Lanoie, Providence, R. I., assignor to Lew
Mfg. Co., Providence, R. I., a partnership com-
posed of Louis A. Lanoie and James T. Murphy

Application December 20, 1937, Serial No. 180,724

4 Claims. (Cl. 120—18)

This invention relates to a mechanical pencil, more particularly to the guide tube for directing the movement of the lead carrier and/or ejector in the operation of the pencil; and has for one of its objects the provision of a simple means of preventing collapsing of the tube when it is forced into the point end of the pencil.

Another object of the invention is the spreading of the stock at the end portion of the guide tube in such a manner that the contacting surface of the guide tube with the bore of the point remains substantially cylindrical and well supported.

Another object of the invention is the spreading of the stock at the end portion of the guide tube by merely squashing or pressing the marginal edges of the slot at the end portion to cause them to come into engagement one with the other.

Another object of the invention is to move the opposite edges of the stock of the guide tube into engagement in an interlocking arrangement.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a sectional view of the point with the guide tube inserted therein;

Fig. 2 is a view similar to Fig. 1 but on a much larger scale showing the guide tube fragmentally;

Fig. 3 is a sectional view on line 3—3 of Fig. 2;

Fig. 4 is a section of the guide tube on line 5—5 of Fig. 2 with the point omitted;

Fig. 5 is a section on line 5—5 of Fig. 2 on a greatly enlarged scale;

Fig. 6 is a perspective view of the guide tube.

In the use of slotted guide tubes for mechanical pencils, it is necessary to so support the tube where it is inserted into the point that the edges of the slot will not be so moved toward each other as to prevent free movement of the carrier tube or ejector in the pencil. Also, to so support the tube that it may be forced with greater pressure into the point to hold it firmly therein than could be done were the tube open so that the tube might be collapsed. In order that this result might be accomplished, it has been usual to cut out of the sheet stock from which the tube was formed projections to abut when the sheet stock was rolled into the slotted tube formation. More recently it has been desirable to provide the guide tube in a more or less continuous length and then close portions of the slot at the end of the section used such as in Patent No. 2,093,919,

with which I am familiar; but in order to improve upon the structure of this patent and make spinning or rotation of the tube to provide such a closure therein unnecessary, I have so arranged that by simple pressing on the marginal edges of the tube at the end the stock may be spread so that its portions will contact and prevent collapsing of the slot. Also, the point of pressure is so arranged that the spreading of the stock occurs in such a manner that the tube is supported in a cylindrical line at the edges; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates the point of a mechanical pencil which is provided with a bore 11 of a size to accommodate the lead to be ejected therefrom and is also provided with a larger bore 12 providing by means of the difference in the bores a shoulder 13 in the point member of the mechanical pencil. The outer surface is tapered as at 14 and provided with a reduced cylindrical portion 15 for fitting into the shell of the pencil, as may be desirable. The guide tube seen and designated in Fig. 6 generally 16 is formed up from sheet stock of a flat ribbon-like shape having parallel edges, the same being bent into the form of a tube with these edges 17 and 18 parallel and spaced to provide a slot 19 running lengthwise of the tube. A tube of this character may be formed in any desirable length and then cut into individual lengths depending upon the length desired to be incorporated into a particular mechanical pencil movement.

Were the end of the tube, such as shown in Fig. 6, inserted into the bore 12 its edges would be moved toward each other and its inherent tendency to expand would be all that afforded a grip of its outer surface and the surface of the bore 12. Besides the moving of these edges together might jam the carrier or ejector of the mechanical movement. Accordingly, in order that no closing by reason of insertion into the bore 12 may be had, I press the marginal edge portions at each edge of the slot at the end which is to be inserted into the point so as to provide depressions 20 at spaced intervals along the tube and in staggered relation as regards the opposite margins of the slot and at the same time cause the stock to be spread from one edge of the tube toward the other edge, each forming a serpentine path with the lobes of one extending into the hollows of another into contact, so that the opposite edges support each other, and

I locate the points of pressure to provide the projections sufficiently back of the edges 17 and 18 of the tube that the portions 21 of the tube remain substantially in the same circumferential line as the outer surface 22 of the tube. Thus, the surfaces 21 are in the same circumferential line as the outer surface 22 of the tube and form a point of support when the tube is forced into the bore 12 so that there is no chance of collapsing of the tube, and if for any reason the point 21 may be slightly inward from the circumferential line 22 of the tube, the pressure will cause it to be forced outwardly so that it will come into firm contact with the walls of the bore 12 and thus a support at substantially all angular positions from the center to the circumferential line of the tube is had with the bore 12. The tube is thus well supported against collapsing and appreciably no change takes place between the parallel edges 17 and 18 of the guide tube from their position as formed when the tube is inserted into the bore 12.

Also, by reason of the serrated path of the contacting edges an increased line of support between them is had and an interlocking relation is had against relative axial movement of the edges of the tube at the time of forcing the same into the bore 12.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A guide tube for a mechanical pencil adapted to be immovably seated in the point member of the pencil comprising a tubular body portion

having a longitudinal slot with the opposite marginal edges of the slot adjacent one end of the tube compressed back of the marginal edges and in staggered relation and to an extent to spread the stock at the marginal edges into the previous slot in staggered projections and into closely adjacent interlocking relationship to prevent closing of the slot by compression of the tube at this location.

2. A guide tube for a mechanical pencil adapted to be immovably seated in the point member of a pencil comprising a tubular body portion having a longitudinal slot with portions of the opposite marginal edges of the slot adjacent one end of the tube and in staggered relation extending toward the opposite margin of the tube into closely adjacent interlocking relationship to prevent closing of the slot by compression of the tube at this location.

3. A guide tube for a mechanical pencil adapted to be immovably seated in the point member of a pencil, comprising a tubular body portion having a longitudinal slot with portions of material of the opposite marginal edges of the slot adjacent one end of the tube extending into the slot and into closely adjacent relationship with each other and with the outer surfaces of said portions substantially flush with the circumferential surface of the tube.

4. A method of closing an end portion of a mechanical pencil guide tube formed of sheet stock and provided with a longitudinal slot extending from end to end, consisting of forcing staggered portions of the material at the marginal edges of the slot adjacent one end of the tube with sufficient pressure to spread said portions of material to extend in staggered projections into closely adjacent interlocking relationship.

LOUIS A. LANOIE.