Nov. 2, 1954 R. A. LANOIE 2,693,171

WRITING INSTRUMENT

Filed Nov. 16, 1953

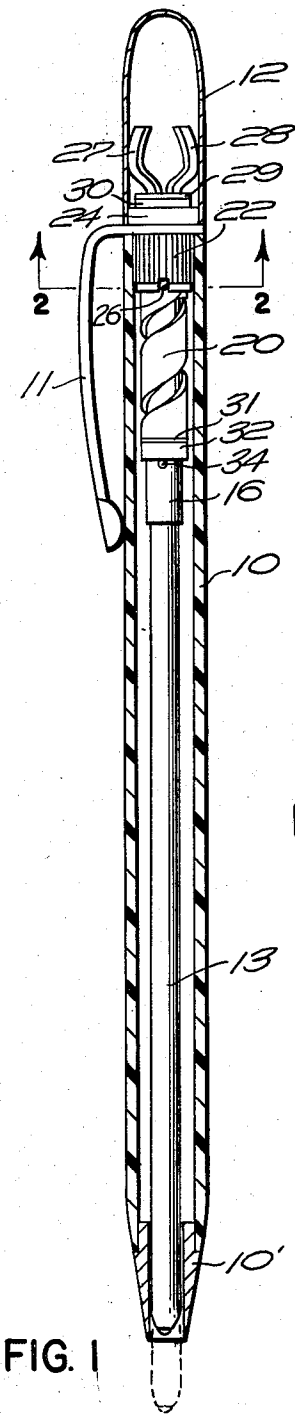


FIG. 1

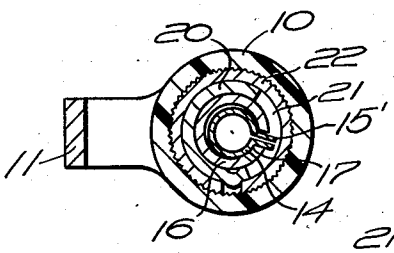


FIG. 2

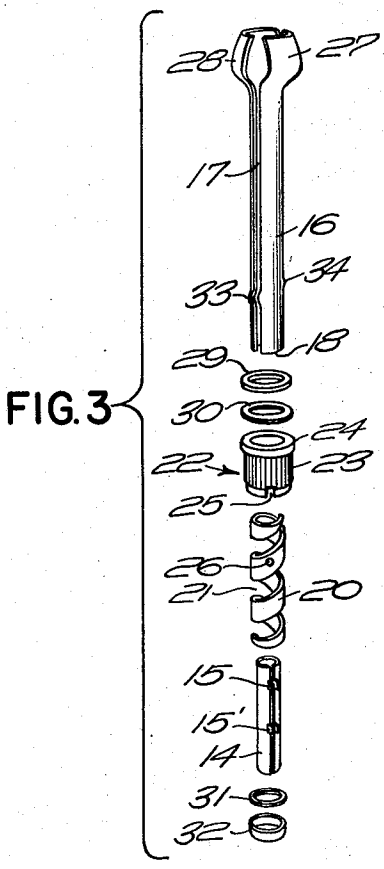


FIG. 3

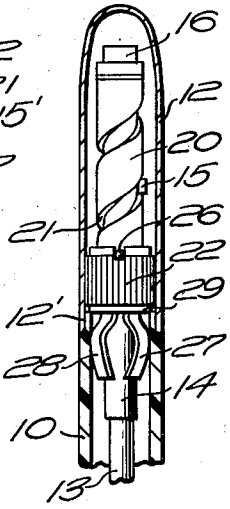


FIG. 4

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WRITING INSTRUMENT

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3 Claims. (Cl. 120—42.03)

The present invention relates to writing instruments and more particularly to the mechanical mechanism used to extract a marking device.

An object of the invention is to improve upon the construction of writing instruments, particularly by reducing the number of parts of the extracting mechanism.

A more specific object of the invention is to provide a cylindrical guide member in an extracting mechanism which is spread at the upper end thereof so as to provide driving engagement with a cap that may be frictionally held thereby and eliminate the need for an exernal driving boss.

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 drawings:

Figure 1 is a sectional view taken through the body of a writing instrument illustrating a preferred employment of the extracting mechanism;

Figure 2 is a sectional view taken on lines 2—2 of Figure 1 showing the frictional engagement of the boss of the extracting mechanism with the casing;

Figure 3 is an exploded view showing the parts of the improved extracting mechanism;

Figure 4 is a partial sectional view showing a modified employment of the extracting mechanism.

In proceeding with the invention, I provide a clutch tube with projections thereon that slide within a slot in a guide member. To move the clutch tube a sleeve having helical threads is slipped over the guide member, the threads engaging the projections. Relative rotation of the parts is effected by providing a boss to engage the sleeve and a part of the casing and a spread portion at the upper end of the guide member to engage another part of the casing, which rotation moves the clutch tube within the guide member.

Referring to the drawings which show merely by way of example embodiments of my invention, the writing instrument is provided with a casing **10** which encloses the extracting mechanism, a clip **11** encircling part of the mechanism and extending outside of the casing **10** so as to retain the instrument in the owner's pocket. A cap **12** is provided, which serves as a driver for the extracting mechanism and which is adapted to engage one part thereof as will presently be more fully described. The marking device **13** projects from the conical end **10'** of the casing **10** and is frictionally clutched or held by a split tube **14**. The clutch member or tube **14** is adapted to be slidably received in a cylindrical guide member **16** and is provided with two projections **15—15'**. The cylindrical guide member **16** is provided with a longitudinal slot **17** throughout its length, the projections **15—15'** of the clutch member **14** being adapted to slide therein. The clutch member **14** is normally within the slotted tube **16** as shown in Figure 1 but may be projected through the lower end **18** thereof towards the end of its movement through the slotted tube **16**.

To effect this movement, a sleeve **20** having a helical slot **21** is slidably received upon the exterior of the cylindrical guide member **16**. At the upper end of the sleeve **20** there is affixed a boss **22** having a knurled portion **23** and a rim **24**. This boss is provided with a notch **25** which is adapted to engage a projection **26** upon the sleeve **20** so as to be fixed therewith. The

boss **22** is adapted to frictionally engage the casing **10** and thereby fixedly hold the sleeve against relative rotation. The cylindrical guide member **16**, however, is provided with two ear portions **27** and **28** which are formed by cutting the tube at its upper extent diametrically opposite the slot **17**. These ears are then spread outwardly and form a frictional engagement with the cap **12**. As the guide member **16** is rotated within the sleeve **20**, the clutch member **14** will be advanced or retracted within the cylindrical guide member as a unit according to the direction of rotation of the guide member **16**. The projections **15—15'** will slide freely through the helical slot **21** during such rotation, and therefore, to advance or retract the marking device **13**, it is merely necessary to hold the sleeve **20** and rotate the guide member **16**.

To provide a structure whose parts will rotate freely against one another, two washers **29** and **30** are provided between the upper end of the boss **22** and the ears **27, 28** of the cylindrical guide member. Preferably the lower washer **30** is made of some non-metallic material that will tend to self-lubricate the metallic parts on either side thereof. To hold the entire structure together, washers **31** and **32** are provided at the lower end of the guide member, and the guide member is bent outwardly as at **33** and **34** so as to urge the parts together. In this instance also the washer **31** is preferably made from some non-metallic material.

According to the structure herein shown, the cylindrical guide member **16** is adapted to be rotated by springing the ears **27, 28** outwardly to a sufficient distance so that as a cap **12** is fitted frictionally on the ears **27, 28**, a tight enough fit will be effected to secure rotation of the tube **16**. The purpose of bending the upper part of the tube **16** outwardly is not only to provide a portion which may be engaged to be rotated and thus eliminate the necessity of affixing a separate boss to the tube but additionally forms a portion which will hold the parts in their assembled relation as illustrated in Figure 1. As will be readily apparent, the ear portion **27, 28** of the slotted tube **16** may be formed in such a manner that it will resiliently hold an eraser should it be so desired.

Referring to Figure 1, it will be seen that the cap **12** engages the ears **27, 28** at spaced points in such a manner that should this be the only bearing point between the mechanism and the cap, the cap would tend to tip. To prevent such an action, however, the boss **22** has been provided in this instance with an enlarged rim **24**, which, as seen in Figure 1, is of a diameter equal to the expanded diameter of the ears **27, 28**, thus providing a second engagement point of the cap **12** with the mechanism. Alternately the rim **24** may be omitted and the casing **10** provided with a reduced diameter which will accept the bottom portion of the cap **12**.

The mechanism shown herein may be arranged as shown in Figure 4 in which the parts are reversed so that the boss **22** engages the cap **12** and holds the mechanism therein. The ears **27, 28** engage the casing **10** and the casing is provided with a reduced diameter section **12'** to accept the end of cap **12**. Additionally the clutch member **14** is made slightly longer so that it will extend beyond the ears **27, 28** as shown.

I claim:

1. A writing instrument having a casing of two parts that are adapted for relative rotation, a boss frictionally held in one of said parts, a sleeve having a helical thread therein received in said boss and attached thereto, said sleeve receiving a guide member with a longitudinal slot therein, a clutch member received in said guide member and having a projection thereon extending through said slot in said guide member and into engagement with said helical thread, said guide member extending through said boss and having two longitudinal ears at its outer end formed of the same piece of material that are cupped outwardly, said ears engaging the other of said parts.

2. A writing instrument as in claim 1 wherein one of said parts is a casing and another of said parts is a cap.

3. In a writing instrument, a propelling mechanism comprising a cylindrical guide member having a longitudinal slot, one end of said member having a second slot extending for a portion of the length, the material between said slots being bent outwardly to form ears, a sleeve having a helical thread around said guide member, a boss attached to one end of said sleeve, said sleeve and boss abutting said ears, a ring engaging the other end of said sleeve about the guide member, and

means on said guide member to retain said ring in position, a clutch member received within the guide member and having a projection extending through said slot into said thread, a casing of two parts adapted for relative rotation, one of said parts engaging said boss and the other part engaging said ears.

No references cited.