

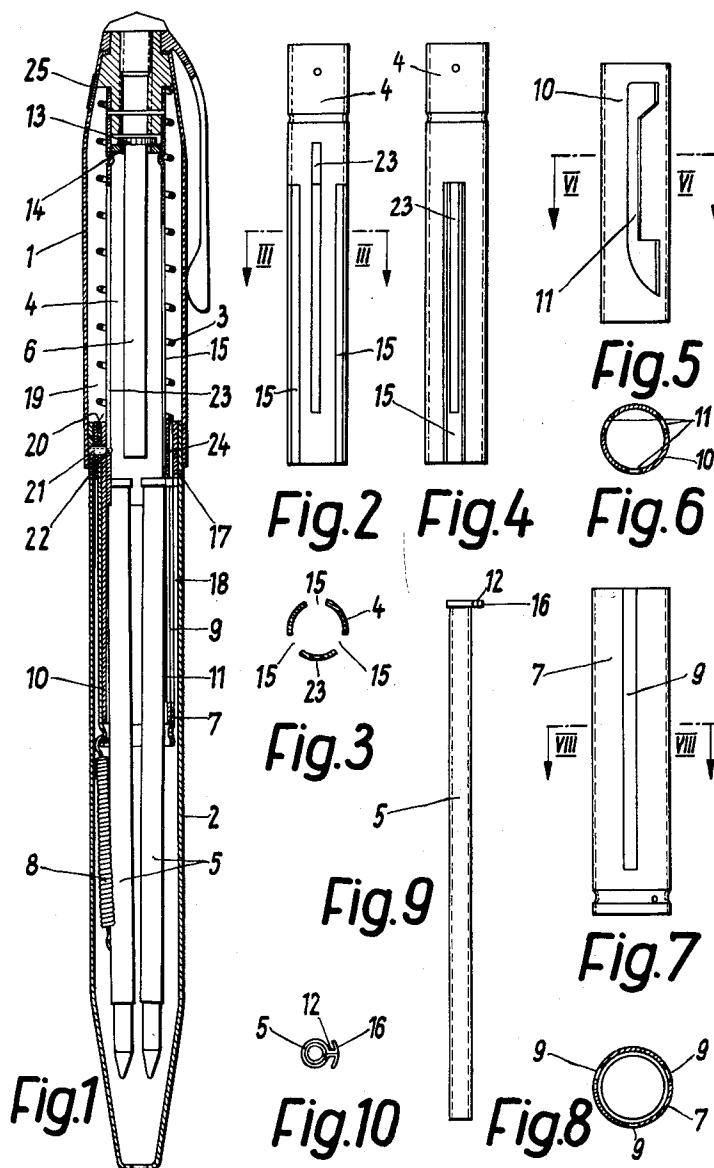
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MULTICOLOR PEN OR PENCIL

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1

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MULTICOLOR PEN OR PENCIL

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The present invention relates to a multicolor pen or pencil of the type in which the holder of the pen or pencil comprises two outer casing parts which are slidable relative to each other and are held in an extended position by a retracting spring, and in which the rear casing carries within its rear end a tubular member, which, in turn, carries a feed rod which permits the person using the pen or pencil to select any one of several leads or ball-point cartridges by the action of the gravity of the feed rod and then to feed such selected lead or cartridge forwardly into the operative or writing position by pushing the rear casing forwardly relative to the front casing. This front casing contains a guide tube and within the latter the lead or cartridge holders, each of which is normally maintained in the retracted position by a retracting spring. The front casing is further provided with longitudinal guide slots and has a locking tube rotatably mounted therein which has longitudinal locking slots therein, while each lead or cartridge holder is provided with laterally projecting guide pins which extend through the slots in the locking tube and into the slots in the guide tube.

Prior to this invention, there have been several known designs of multicolor pens or pencils which generally conformed to the type described above and in which the feed rod was supported and constructed in different manners. According to one of these prior designs, the feed rod was provided with a head portion which was retained and guided within an annular channel at the bottom of the feed tube. In another prior design, the feed rod was bent at its rear end and mounted by means of a ball end within a socket which was disposed at the center of the bottom of the feed tube. According to still another prior design of such a multicolor pen or pencil, the feed rod was suspended by means of a crank on a pin which was mounted at the center of the bottom of the feed tube.

Regardless of the particular manner in which the feed rod was supported in each of these prior devices, they all had in common that the feed rod was disposed parallel to the axis of the feed tube and had to be brought into a position substantially coaxially with a lead or cartridge holder for feeding the same forwardly when the two outer casing parts were shifted relative to each other. In order to place the feed rod into any one of the positions in which it could be used to feed a lead or cartridge holder forwardly, it was necessary in all of these prior devices to hold the pen or pencil substantially horizontally and to turn it to the desired positions.

All of these prior devices have considerable disadvantages which may even cause a complete failure in the operation of the feeding mechanism and are primarily due to the fact that in each of them a certain frictional resistance has to be overcome as the result of which the feed rod may become locked or wedged so that it may be necessary to shake or knock the pen or pencil in order to render it again operative.

A further disadvantage of these known multicolor pens or pencils consists in the fact that they are composed of a multiplicity of individual parts, and especially that they require a special guide member for guiding the lead or cartridge holder as well as the feed rod at the inside of the guide tube. This made these prior devices rather

2

thick and clumsy and rendered the production thereof very complicated and expensive.

It is an object of the present invention to provide a multicolor pen or pencil of the type as described at the beginning which, however, does not have the above-mentioned disadvantages of the prior devices, but may be manufactured very easily and inexpensively and also of much smaller dimensions than previously was possible, and which especially has the advantage of operating absolutely reliably at all times.

These objects are attained according to the invention by making the feed rod in the form of a straight rod with an enlarged head thereon and by mounting the same with a considerable amount of radial play, but only a small amount of axial play within a central aperture in the closed rear end of the rear inner tube. When the pen or pencil is then turned about its axis, the feed rod will be capable of pivoting under the action of its gravity to any position within a conical range. The mentioned advantages are further due to the fact that the inner tube within the rear casing is provided with longitudinal slots for guiding the feed rod and such particular holder during the forward feeding movement, and at the same time for maintaining the other holders which are not being fed in a fixed position within the front casing.

According to another important feature of the invention, the laterally projecting guide pins on the lead or cartridge holders extend through the longitudinal slots in the guide tube, and their outer ends are enlarged so as to extend laterally beyond the edges of the slots at the outside of the guide tube.

A further important improvement according to the invention which facilitates the manufacture and assembly of the multicolor pen or pencil consists in cutting the longitudinal slots in the guide tube so as to be open at their rear ends to permit the insertion of the guide pins on the lead or cartridge holders when the latter are inserted into the tubes, and in fitting a spacing ring over the rear end of each guide tube so as to close these open ends and to form an annular slot between the guide tube and the outer front casing in which the enlarged outer ends of the guide pins on the lead or cartridge holders are able to slide when the latter are being shifted.

The spring for retracting the rear outer casing to the extended position is mounted in an annular slot between the rear casing and its inner tube, and it acts with its front end upon the rear end surface of both the guide tube and the spacing ring.

For connecting the front casing with the inner tube of the rear casing and for limiting their sliding movement relative to each other, at least one screw is inserted into the rear end of the front casing and passes through the spacing ring, the guide tube, and a tube which maintains the locking tube in a fixed position in the axial direction, so as to secure these parts together, while the front end of this screw extends through a longitudinal slot in the rear inner tube which is closed at both ends, and thus serves as a stop to limit the extent of the relative movement between the front and rear casings.

These and other objects, features, and advantages of the present invention will become further apparent from the following detailed description thereof, particularly when read with reference to the accompanying drawings, in which—

FIGURE 1 shows a longitudinal section of a multicolor pen or pencil according to the invention;

FIGURE 2 shows a side view of a rear inner tube;

FIGURE 3 shows a cross section taken along line III—III of FIGURE 2;

FIGURE 4 shows a side view of the rear inner tube, as seen from the opposite side of that shown in FIGURE 3;

3

FIGURE 5 shows a side view of a locking tube;

FIGURE 6 shows a cross section of the locking tube taken along line VI—VI of FIGURE 5;

FIGURE 7 shows a side view of a front guide tube;

FIGURE 8 shows a cross section of the guide tube taken along line VIII—VIII of FIGURE 7;

FIGURE 9 shows a side view of a lead or cartridge holder; while

FIGURE 10 shows a top view of the lead or cartridge holder according to FIGURE 9.

The multicolor pen or pencil according to the present invention comprises a holder consisting of two outer casings 1 and 2 which are slidable relative to each other and are held in the inoperative position by a retracting spring 3. The rear casing 1 carries within its rear end a tubular member 4 which, in turn, carries a feed rod 6 for selecting a writing means holder, such as a lead or ink cartridge holder 5 by the action of gravity and for feeding the same forwardly. The front casing 2 contains a guide tube 7 and within the latter the lead or cartridge holders 5, each of which is normally held in the inoperative position by a retracting spring 8. Guide tube 7 is provided with longitudinal slots 9, as shown particularly in FIGURE 7, and has rotatably mounted therein a locking tube 10 which is provided with longitudinal guiding and locking slots 11, as shown particularly in FIGURE 5, in which guide pins 12 projecting laterally from the rear ends of the lead or cartridge holders 5 are slidable.

The straight feed rod 6 has an enlarged head 13 and is mounted with a considerable radial play and a small axial play within a central aperture 14 in the closed rear end of the rear inner tube 4 so as to permit it to pivot by its own gravity about head 13 to any position as defined by a conical range of movement when the penholder is held in an inclined position. The rear inner tube 4 within casing 1 has longitudinal slots 15 for guiding the feed rod 6 into substantial alignment with a particular desired lead or cartridge holder 5 and for guiding the feed rod and such holder during the forward feeding movement and for also maintaining the other holders which are not being fed in a fixed position within the front casing 2. The lateral guide pins 12 on cartridges 5 project through slots 11 and 9 in locking tube 10 and guide tube 7, respectively, and their enlarged ends 16 overlap the outer edges of slots 9.

The longitudinal slots 9 in guide tube 7 are open at their rear ends to permit the guide pins 12 on holders 5 to be inserted therein. A spacing ring 17 which is slipped over the rear end of guide tube 7 closes slots 9 toward the rear and forms between tube 7 and the front casing 2 an annular slot 18 in which the enlarged ends 16 of guide pins 12 are slidable when the holders 5 are being shifted.

Retracting spring 3 is disposed within an annular slot 19 between the rear casing 1 and its inner tube 4, and its front end presses against the rear end surface 20 of guide tube 7 and spacing ring 17.

For connecting the front casing 2 to the inner tube 4 of the rear casing 1 and for also limiting the sliding movement of the two casings relative to each other, a screw 21 is provided in the front casing and extends through the spacing ring 17, guide tube 7, and a ring 24 which prevents the locking tube 10 from moving in the axial direction, and thus secures these parts to each other, while its front end extends through a longitudinal slot 23 in the rear inner tube 4 which is closed at both ends and serves as a stop to limit the relative movement of the two casings.

Due to the central position of feed rod 6 within the rear casing 1, it is only necessary to incline the pen or pencil very slightly and no more than to the normal writing position in order to pivot the same so that its free end will engage with the inner peripheral surface of its guide tube 4.

In order to facilitate the selection of a lead or ball-

4

point cartridge of the desired color, the rear casing 1 is preferably provided at a point diametrically opposite to each lead or cartridge holder 5 with a marking 25 of a color corresponding to that of the lead or ink cartridge contained in such holder. For selecting and feeding the desired colored lead or ball-point cartridge, it is therefore only necessary to turn the pen or pencil to the position in which the corresponding color mark 25 faces upwardly, and then to press upon the rear end of the rear casing 1 until the lead or cartridge holder has been pushed forwardly sufficiently so that its projecting pin 12 is arrested in the locking recess in locking tube 10. It would then not even be necessary to hold the pen or pencil so that the selected color mark 25 faces very accurately in the upward position since, due to its gravity, feed rod 6 will tend to drop or roll into the lower slot 15 in the inner tube 4 diametrically opposite to this color mark, and to remain therein while the rear casing 1 is being depressed to feed the lead or cartridge holder 5 forwardly, even though the center of that slot 15 might be disposed slightly laterally of the perpendicular plane passing through the center of tube 4.

Although my invention has been illustrated and described with reference to the preferred embodiment thereof, I wish to have it understood that it is in no way limited to the details of such embodiment, but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed my invention, what I claim is:

1. In a multicolor pen or pencil having two outer tubular casings slidable relative to each other and forming rear and front casings, said casings being axially aligned with respect to each other, a main retracting spring for normally maintaining said casings in the extended position relative to each other, said rear casing containing a guide tube secured at its rear end to said rear casing, a straight feed rod pivotably mounted with a considerable amount of play in the radial direction and a small amount of play in the axial direction within a central aperture in the closed rear end of said rear guide tube, said front casing containing a guide tube having longitudinal guide slots therein, a locking tube having locking slots therein rotatably mounted within said front guide tube, a plurality of writing means holders within said front guide tube, and a retracting spring for retracting each of said holders toward said rear casing, each of said holders having a lateral guide pin thereon projecting through one of said locking slots in said locking tube and into one of said guide slots in said front guide tube, whereby, when said pen or pencil is held at an inclined position and turned about its axis, said feed rod may under the action of its gravity pivot to any desired position within a conical range of movement in said rear guide tube to permit the front end of said feed rod to be brought into substantial alignment with any one of said holders so that the selected holder may then be pushed forwardly by said feed rod into the writing position and into a locked position in said locking tube, said rear guide tube having longitudinal slots substantially in alignment with said holders in said front casing for facilitating the selection of a particular holder by said feed rod, for guiding said feed rod and said selected holder while being pushed forwardly and at the same time for maintaining the other holders in a fixed position within said front casing, said lateral guide pins being disposed within the longitudinal slots in the rear guide tube.

2. A multicolor pen or pencil as defined in claim 1, wherein the free end of each guide pin has a width greater than the width of each guide slot so as to overlap the edges thereof at the outer surface of said front guide tube, said longitudinal guide slots in said front guide tube being open at the rear end thereof to permit said guide pins on said holders to be inserted into said guide slots, a spacing ring fitted on the rear end of said front guide

5

tube to close the open ends of said guide slots therein and to form an annular slot between said front casing and said front guide tube in which the wider free end of each of said pins is slidable when said holder is being shifted in said front guide tube, a stop ring for preventing said locking tube from moving in the axial direction, and at least one screw extending through the walls of said front casing, said spacing ring, said front guide tube, and said stop ring to connect the same to each other, said rear guide tube having at least one further longitudinal slot therein having closed ends, said screw having a front end extending through and slidable within said

5

10

6

slot in said rear guide tube and adapted to limit the relative sliding movement of said two casings.

References Cited in the file of this patent

UNITED STATES PATENTS

2,136,290	Fend	Nov. 8, 1938
2,163,515	Fend	June 20, 1939
2,837,057	Morlock	June 3, 1958

FOREIGN PATENTS

985,667	France	Mar. 14, 1951
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