Oct. 8, 1929. E. B. NICHOLS 1,730,679

WRITING INSTRUMENT

Filed June 1, 1927

Fig. 4

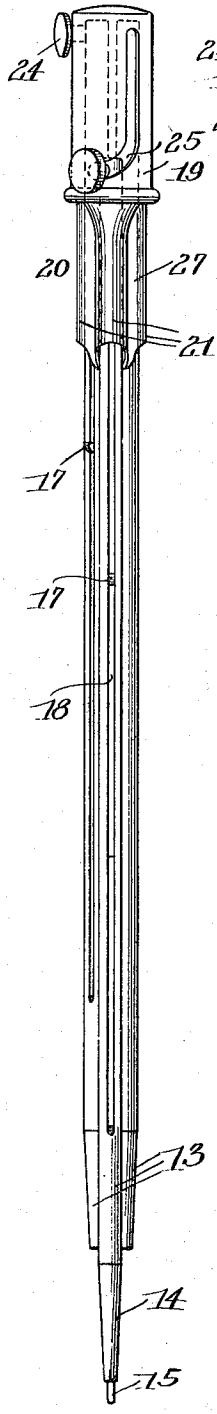


Fig. 1

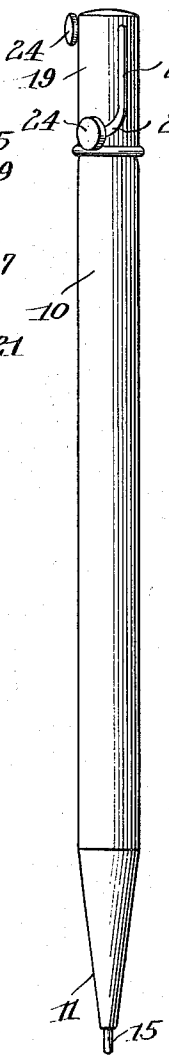


Fig. 2

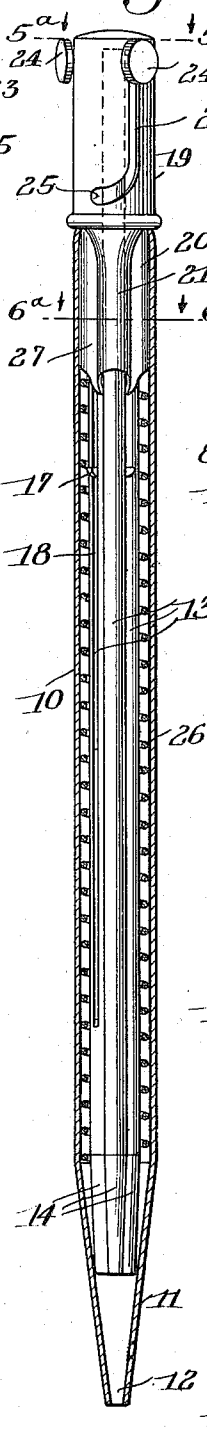


Fig. 3

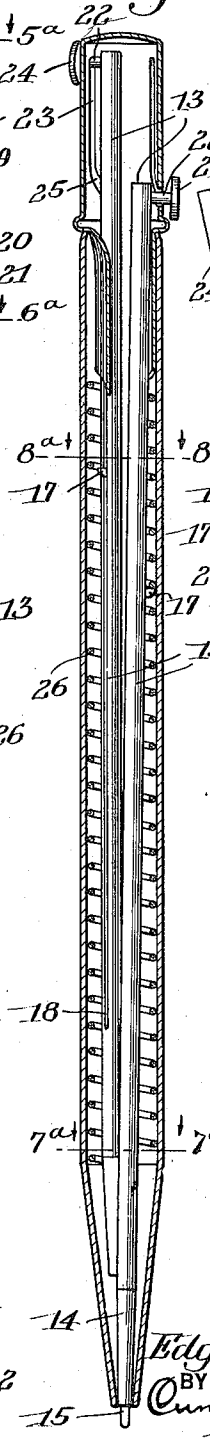


Fig. 5

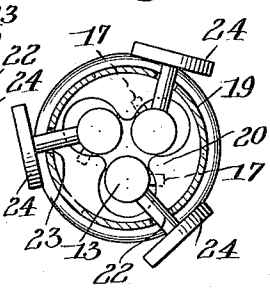


Fig. 6

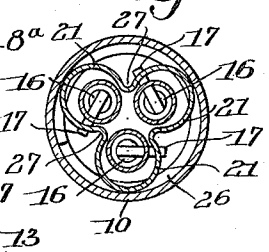


Fig. 7

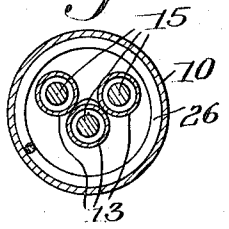
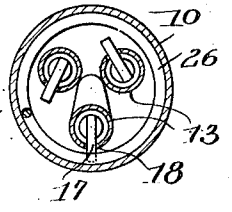


Fig. 8



INVENTOR
Edgar B. Nichols
BY
Crumpton & Griffith
his ATTORNEYS

Patented Oct. 8, 1929 1,730,679

UNITED STATES PATENT OFFICE

EDGAR B. NICHOLS, OF ROCHESTER, NEW YORK

WRITING INSTRUMENT

Application filed June 1, 1927. Serial No. 195,800.

The present invention relates to a writing instrument and more particularly to one of the pen or pencil type in which a plurality of marking or writing elements are selectively arranged for use, one object being to provide an improved writing instrument of this class which is simple in construction, convenient to operate, comparatively inexpensive to manufacture and efficient in service.

Another object of the invention is to provide a pencil of the magazine type in a compact, durable and easily adjustable form which can be quickly filled with different colored leads ready for immediate use and having means by which to conveniently select and move the different leads to writing position.

A further object of the invention is to provide a pencil of the magazine type having a plurality of lead carriers adapted when not in use to have an off-center position within the casing or barrel and adapted to extend substantially the full length thereof to increase the carrying capacity of the pencil and being arranged to have considerable lateral play at their points of support whereby the writing end of any one selected for use is adapted to readily move into central position within the casing when advanced to writing position therein.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a side view illustrating one embodiment of the invention;

Figure 2 is a longitudinal section through the instrument drawn to an enlarged scale with the lead holding magazines shown in normal retracted position;

Figure 3 is a somewhat similar view with one of the magazines advanced to writing position;

Figure 4 is a side view showing the magazines and holder for the same detached from the casing with one of the magazines advanced with respect to the other;

Figure 5 is a transverse section drawn to an enlarged scale and taken on line 5^a—5^a of Figure 2;

Figure 6 is a transverse section taken on line 6^a—6^a of Figure 2;

Figure 7 is a transverse section taken on line 7^a—7^a of Figure 3; and

Figure 8 is a similar section taken on line 8^a—8^a of Figure 2.

Similar reference numerals throughout the several views indicate the same parts.

The present invention embodies a writing instrument of the pencil type designed to have a minimum number of parts which can be easily assembled and cheaply manufactured and one which is capable of holding a plurality of different colored leads or marking elements, any one of which may be selected and presented for use by a simple adjustment of parts. The adjustments are preferably all made from the outer end of the pencil thereby leaving the barrel or casing free to be held in one hand while the fingers of the other hand are employed to make the required adjustments for moving the selected lead to writing position.

Referring to the drawings, 10 represents a barrel or casing having the usual tapered writing end 11 with a reduced opening 12 of a size corresponding substantially to the diameter of the magazines or lead carriers 13, three of which are shown and all being of the same construction, it being understood that a greater or less number may be employed if desired. The magazines are in the form of hollow tubes, preferably constructed of thin sheet metal and are slightly tapered at their writing ends, as indicated at 14 and being split at their forward extremities in the usual manner to form gripping fingers for the lead or marking elements carried therein and indicated at 15. The leads are preferably of different colors, as for example, red, green, and black, though other color combinations may be used, or if preferred all of the leads may be of the same color. The inner diameters of the magazine tubes or carriers are slightly larger than the diameters of the different leads therein, except at the tapered ends of the tubes where the yieldable fingers are adapted to frictionally engage and hold

the leads when fed therethrough. Each carrier has a follower 16 disposed therein for advancing the lead to writing position as shown in Figure 3 in a manner which will be hereinafter described.

Each follower carries at its outer end a laterally projecting or angularly disposed finger or lug 17 which projects through a longitudinally extending slot 18 of the carrier tube for cooperation with suitable propelling means hereinafter described, the free ends of the fingers being rounded or beveled on one or more sides to facilitate engagement with said propelling means.

The magazines or carriers are all preferably supported by a common control member in the form of a holder rotatably mounted upon the outer end of the casing and comprising an outer cylindrical portion 19 which projects from the casing and an inner portion indicated generally at 20 which projects into the casing and is held therein by frictional engagement with the walls thereof upon which it is free to rotate. The inwardly projecting portion 20 comprises three tube-like sections 21 shaped as best indicated in Figures 4 and 6 and through each of which extends the outer end of one of the tubular carriers 13, the carriers being extended into the cylindrical portion 19 of the holder as shown in Figure 3. The carriers are slightly smaller in diameter than the openings of the tubular sections 21 through which they project whereby sufficient play is allowed to permit their writing ends to swing into the center of the pencil point 11 as shown in Figure 3. Thus, flexing or bending of the carrier tubes is prevented in moving them to writing position whereby breaking of the lead is avoided.

The outer ends of the carriers which extend into the cylindrical portion 19 of the holder are provided with laterally projecting operating pins 22 which project through longitudinally extending slots 23 in the holder and have buttons or knobs 24 thereon by which to more conveniently move the tubes to and from writing position longitudinally of the casing and of the holder as well. The slots 23 terminate at their forward ends in circumferentially extending portions 25 so that when the pins 22 are moved therein the lead holding tubes are given a rotating or turning movement around the cylindrical portion 19 of the holder so as to swing or rotate the carrier and its follower to and from operative relation with respect to suitable propelling or advancing means for the follower which serves to move the lead to writing position as shown in Figure 3. The propelling means may be of any suitable type, such for example, as the spirally wound spring 26 which fits snugly within the casing 10 and extends from the base of the tapered portion 11 thereof to the inner end portion 20 of the magazine holder, the spring being held against rotation by frictional engagement with the walls of the casing. The slots 23 are so arranged that when the pins or projections 22 of the carriers are located therein the lugs or fingers 17 are adapted to lie in grooves 27 formed between the tubular sections 21 of the magazine holder as shown both in Figures 5 and 6, in which position the fingers are disengaged from the propelling means, comprising in the present instance, the spring 26. Upon movement of the pin 22 of any one of the carrier tubes into the slot 25, rotation of the carrier is effected and the finger 17 is thus moved out of the groove 27 into position between the coils of the spring so that subsequent rotation of the magazine holder causes the follower of the adjusted magazine to be advanced and likewise the lead within said carrier. Advancement of the follower is of course, due to rotation of the finger 17 of the selected carrier in contact with the coils of the spring. However, since the fingers of the remaining followers are not adjusted into position between the spring coils said followers will not be advanced, although they, together with the carriers on which they are mounted are rotated simultaneously with the selected carrier upon rotation of the magazine holder or control member 19.

As before stated, the buttons or knobs 24 are given the desired colors and the corresponding magazines are loaded with like colored leads, which can be readily inserted through thin forward ends so that it is easy to select the color desired and by pushing the selected button forwardly and turning it to the right until it occupies the position shown in Figure 1, and thereafter rotating the magazine holder, the lead is extended to writing position. When through writing with a lead of a given color the button is moved from the position shown in Figure 1 to that shown in Figure 2, which automatically withdraws the finger 17 from engagement with the spring and returns it to inoperative position within the recess 27 as shown in Figure 6. Should it be desired to continue writing, but with a lead of a different color, the button corresponding to the newly selected color will be pushed forward to the position shown in Figure 1 and the magazine holder then rotated as in the previously described operation.

The magazine holder may be constructed in any desired manner but preferably comprises a one-piece tube, the outer end of which is slotted as shown and the inner end shaped by the use of suitable dies or otherwise to form the tubular sections 21 and grooves 27 therebetween the dies forcing the metal inwardly at the three points indicated in Figure 6 whereby openings for the carrier tubes of the proper size are afforded.

From the particular construction shown it

will be seen that an advantage is afforded by having the magazine equal the length of the casing and substantially the length of the pencil whereby its lead holding capacity is increased and the number of parts reduced.

Another advantage is in constructing the holder so that each magazine can freely move thereon from a normal off-center position to a central writing position at its forward end and vice-versa whereby flexing of the carriers may be avoided and the consequent danger of breaking the leads therein.

A still further advantage of the present construction is that all of the manually operable parts are located at one point and this is particularly true since they are disposed at the outer end of the pencil, thus permitting the entire barrel or casing to be gripped in one hand while the fingers of the other hand are used to adjust the buttons and to rotate the magazine holder.

I claim as my invention:

1. In a writing instrument, a casing, propelling means within the casing, a holder rotatably attached to the casing and a plurality of carriers having separate writing elements, each carrier being mounted upon and independently adjustable relative to the holder from an inoperative to an operative position with respect to the propelling means, and mechanism operatively connecting the propelling means to the writing element of a carrier which has been adjusted to an operative position whereby upon rotation of the holder relative to the casing the writing element of the carrier which has been adjusted to an operative position will be advanced.

2. In a writing instrument, a casing having an opening at one end, a holder rotatably attached to the casing, propelling means within the casing and a plurality of writing instrumentalities mounted upon and selectively adjustable for longitudinal and rotary movement relative to the holder from an inoperative position to an operative position with respect to the propelling means, and mechanism associated with said writing instrumentalities for connecting the propelling means to a writing instrumentality which has been moved to said operative position, so that operation of said propelling means will advance said writing instrumentality through said opening at one end of the casing.

3. In a writing instrument, a casing having an opening at one end, a yieldable propelling element held against rotation within the casing, a holder adjustable relative to the casing and a plurality of carriers for separate writing elements each mounted upon and independently adjustable with respect to the holder from an inoperative to an operative position with respect to the propelling means whereby upon adjustment of the holder relative to the casing the writing element of a carrier which has been adjusted to an operative position will be advanced by said propelling means through said opening.

4. In a writing instrument, a casing, propelling means within the casing, a holder rotatable relative to the casing, a carrier for a writing element mounted upon and adjustable longitudinally and circumferentially with respect to the holder and a follower associated with the carrier and adapted during adjustment thereof to be moved into cooperative relation with the propelling means whereby upon rotation of the holder the follower will be moved to advance the writing element held by the carrier.

5. In a writing instrument, a casing, propelling means held against rotation within the casing, a holder rotatably mounted upon the casing, a plurality of carriers mounted upon and for independent movement with respect to the holder to a predetermined control position, and a follower movable upon each carrier to advance a writing element held thereby and adapted to be brought into operative relation with said propelling means upon movement of the carrier to said control position whereby rotation of the holder will serve to advance the follower.

6. In a writing instrument, a casing, propelling means within the casing, a plurality of carriers mounted for independent rotation within the casing, a follower for each carrier adapted to be rotated therewith to and from operating position with respect to the propelling means and a member movable relative to the casing adapted to produce a relative movement between all of said carriers and said propelling means.

7. In a writing instrument, a casing, a plurality of carriers therein, a follower movable relative to each carrier, common propelling means for the followers, control means for guiding each carrier whereby said carrier may be moved to a position such that its follower will be adjusted into cooperative relation with said propelling means.

8. In a writing instrument, a casing, a plurality of carriers therein, followers movable longitudinally of and relative to the carriers, propelling means for the followers and control means adapted for guiding each carrier to a predetermined position wherein the follower corresponding thereto will be adjusted for cooperation with said propelling means.

9. In a writing instrument, a casing, yieldable propelling means therein, a holder rotatable upon the casing, a plurality of writing instrumentalities within the casing each being mounted upon and having a limited lateral movement with respect to the holder and each being adjustable longitudinally and circumferentially thereof for movement into position to be actuated by the propelling means upon rotation of the holder.

10. In a writing instrument, a casing having an opening at one end, a holder rotatable

upon the opposite end of the casing, propelling means within the casing and a plurality of writing devices projecting from the holder into the casing and being adjustable therein and each including relatively movable parts comprising a guide for a writing element and a follower for moving it upon the guide, each guide being independently adjustable upon the holder to move the follower into and out of position to be advanced by the propelling means upon rotation of the holder.

11. In a writing instrument, a casing, a holder rotatably mounted thereon, a plurality of lead holding tubes projecting from said holder into the casing and adapted for selective movement longitudinally of the casing and each being free to swing upon the holder from an off-center position into a central writing position at its forward end when adjusted longitudinally of the casing and means adapted upon rotation of the holder to advance the lead carried by the adjusted tube.

12. In a writing instrument, a casing, a holder rotatably mounted thereon, a plurality of lead holding carriers projecting from said holder and each being slidably and swingingly mounted thereon whereby they may be moved from a retracted off-center position to an advanced substantially central writing position within the casing and means adapted when either of said carriers is moved to said advanced position to advance the lead carried thereby upon rotation of the holder.

13. In a magazine pencil, a casing, a holder projecting from and rotatable upon one end of the casing, said projecting portion having a plurality of slots therein, lead carriers disposed within the casing and each having an operating portion projecting into one of said slots whereby the carriers are independently adjustable longitudinally and circumferentially of the casing to a predetermined point and means within the casing adapted to advance the lead of each carrier after it has been adjusted to said point and upon rotation of the holder.

14. In a writing instrument, a casing, a holder projecting from and rotatable upon one end of the casing, said projecting portion having a slot extending longitudinally and circumferentially thereof, a carrier within the casing having an operating portion at one end disposed in said slot and a writing element at its opposite end movable relative to the carrier and means adapted after movement of said operating portion to a predetermined point to advance the writing element upon rotation of the holder.

15. In a writing instrument, a casing having a tapered writing end, a holder detachably connected with the opposite end of the casing, a plurality of carriers disposed within the casing and each being directly connected with and arranged for an independent movement relative to the holder whereby to selectively advance either carrier to writing position within the tapered end of the casing.

16. In a writing instrument, a casing having an opening at one end, a holder rotatable upon and projecting from the opposite end of the casing, propelling means within the casing, a carrier for a writing element disposed within the casing and being supported by said holder for longitudinal and circumferential movement relative thereto whereby to adjust the carrier to writing position within the open end of the casing and means adapted upon rotation of the holder to advance the writing element of the adjusted carrier.

17. In a writing instrument, the combination with a casing, of propelling means therein, a plurality of carriers movably mounted within said casing, all of said carriers being normally in an ineffective position and each carrier being adapted to hold a supply of consumable writing material, a follower associated with each carrier for feeding the writing material relative to the carrier, separate means attached to each carrier for moving any selected carrier relative to said casing from an ineffective position to an effective writing position and for concomitantly moving the follower associated with said selected carrier from an ineffective position into cooperative relationship with said propelling means, and means for operating said propelling means so as to move said follower to feed the writing material relative to the carrier.

EDGAR B. NICHOLS.