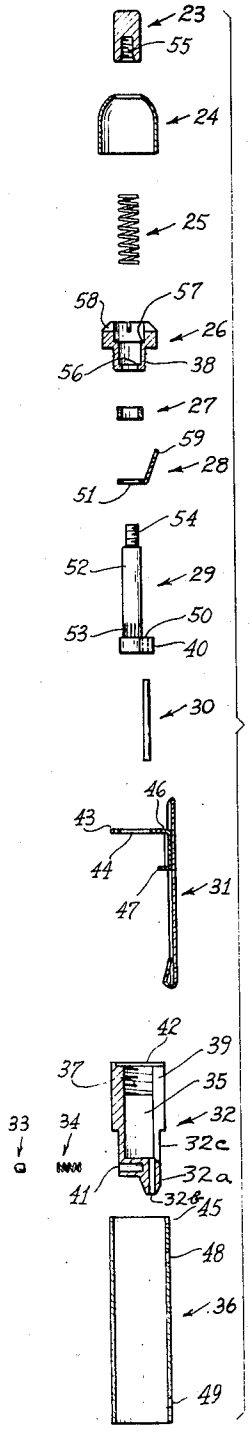
Feb. 19, 1957 P. TINTNER 2,781,741

RETRACTABLE MULTI-COLOR WRITING INSTRUMENT

Filed June 9, 1955

FIG. 3



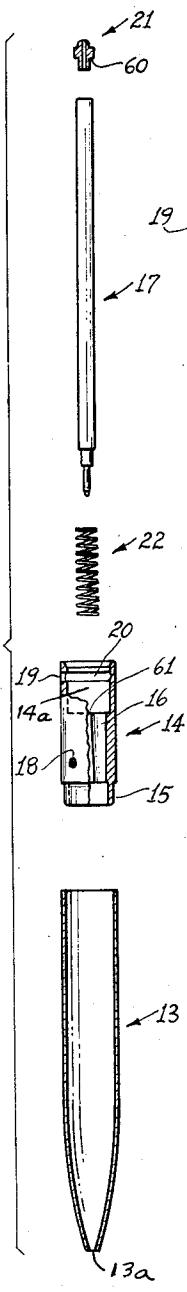


FIG. 4

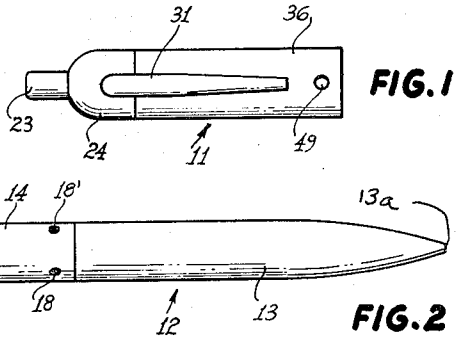


FIG. 1

FIG. 2

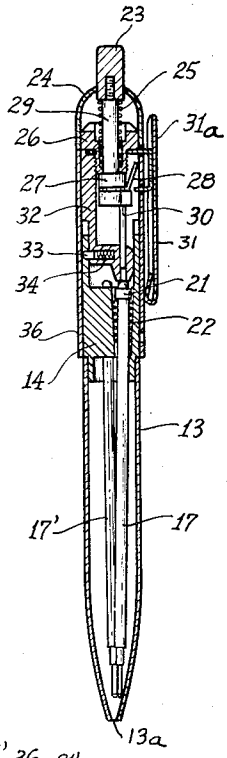


FIG. 5

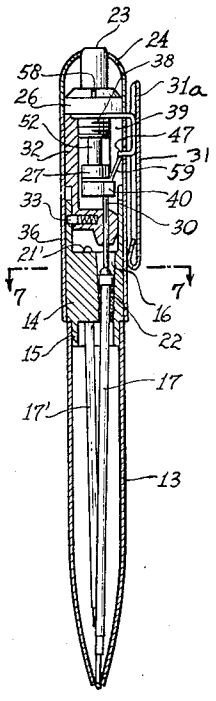


FIG. 6

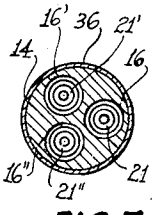


FIG. 7

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RETRACTABLE MULTI-COLOR WRITING INSTRUMENT

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Application June 9, 1955, Serial No. 514,275

13 Claims. (Cl. 120—42.13)

This invention relates to improvements in retractable writing instruments having a plurality of writing implements and more particularly to the multi-color type.

It is an object of the present invention to provide a retractable writing instrument having a plurality of writing implements adapted to be selectively projected through a front orifice of the housing of the instrument and in which the dispensed implements may be easily replaced.

It is a further object of the present invention to provide a multi-color retractable writing instrument, such as of the ball-point type which is efficient, practical, economical and which is not likely to get out of order unless abused.

It is another object of the present invention to provide a multi-color retractable ball-point pen or pencil in which the front and rear portions of the barrel are relatively rotatable to present in retracted position a selected cartridge holding the desired colored ink, the selected cartridge being extended by depressing a projecting button or plunger slidably operable in a cap at the upper portion of the barrel, and in which the portions of the barrel are separated by a predetermined part turn thereof for replacing the cartridges.

Yet another object of the present invention is to provide a clip-operating mechanism to retract the selected cartridge to inoperable position after being extended.

Another object of the present invention is to provide novel means to condition the selected ink cartridge for projection at the tip of the barrel.

A further object of the present invention is to coordinate the said conditioning means with the push-button cartridge-extending means.

Yet another object of the present invention is to provide novel multi-cartridge holding means which are rotatable for selection of the desired cartridge to be extended.

Further objects and advantages of the invention will appear from the following disclosure thereof together with the attached drawing which illustrates a certain form of embodiment thereof. This form is shown for the purpose of illustrating the invention since the same has been found to give satisfactory results and to be reliable. It is to be understood, however, that the instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

In the drawings:

Fig. 1 is a plan view of the upper assembly incorporated in a retractable pen or pencil according to the invention;

Fig. 2 is a plan view of the lower assembly thereof;

Fig. 3 is an exploded view of the said upper assembly;

Fig. 4 is an exploded view of the said lower assembly;

Fig. 5 shows the multi-color ball-point pen in retracted condition;

Fig. 6 shows the said pen with one of the ball-point cartridges in extended writing condition; and

Fig. 7 is a sectional view taken through 7—7 of Fig. 6.

Referring now in more detail to the drawing which discloses an example by which the invention is realized, the writing instrument in the form of a multi-color, retractable ball-point pen **10** comprises an upper assembly **11**, illustrated in Fig. 1 and a lower assembly **12**, illustrated in Fig. 2.

Lower assembly **12**, as seen in Fig. 4, comprises a barrel **13**, cartridge guide **14** being pressfitted into barrel **13** at shank **15** and having three tapered holes **16**, **16'**, **16''**, arranged 120° apart serving as funnelling means for ink cartridges **17**. Guide **14** has on its periphery three color indicator dots **18** and on its interior three registering holes **19** connected through an annular groove **20** to lock the cartridges in position while the pen is in use and which indicate at the same time the color used in conjunction with parts of the upper assembly **11**, as will be described later on. Fitted to each cartridge **17** at its upper end is grommet **21** serving as a seat or shoulder for spring **22**, abutting against it, spring **22** encircling cartridge **17** and bearing upwardly on grommet **21** to hold or maintain cartridge **17** in retracted position unless being held down forcibly by means to be described later on.

Upper assembly **11**, as shown in Fig. 3 from top to bottom, consists of the following parts, namely, push button **23**, cap **24**, spring **25**, bushing **26**, retaining ring **27**, leaf spring **28**, keyed rod **29**, push pin **30**, clip **31**, slotted retainer **32**, tit **33**, spring **34** and enclosure or sleeve **35** (indicated in Figs. 1,5, and 6 and below in the specification as **36**) forming the rearward section of the barrel or housing. Retainer **32** has a bore **36** the upper part of which is tapped as indicated at **37** to threadedly engage thread portion **38** of bushing **26**. Cylindrical element or retainer **32** has a longitudinal slot **39** milled in to provide positive sliding engagement for key **40** of rod **29** and a cam-shaped nose or end **32***a* having a passage **32***b* for pin **30**. Retainer **32** further has a hole **41** on its side to receive spring **34** and tit or pin **33** which, when the parts are assembled, rides in groove **20** of guide **14** and provides positive peripheral locking means for the cartridges **17**, one at a time, when pin **33** enters into hole **19**.

Recess **42** receives the ring shaped portion **43** of clip **31**, hole **44** permitting clearance for the threaded neck **38** of bushing **26**. Slot **45** in tube housing section **36** registers with slot **39** of retainer **32**, permitting the neck portion **46** of clip **31** to pass through to the outside. A bent-over portion **47** of clip **31** re-enters through hole **48** of tubular housing or barrel section **36**, the interior of the pen and thus provides one part of the cartridge locking arrangement, the other part being described below. When turning the upper part of the pen, hole **49** in section **36** is brought to register with one color indicator dot **18** when pin **33** sinks into detent **19**. As disclosed in the present invention, three positions for three different color cartridges are provided. Pin **30** being pressed with its upper end into hole **50** of pusher **29**, pushes with its other end onto grommet-cartridge assembly **21**, **17**, holding the latter in writing position. Hole **51** in spring **28** fits over cylindrical portion **52** of rod **29**, spring **28** being held down by retaining ring **27** which pressfittedly engages knurled portion **53** of pusher **29**. Push rod **29** has on its upper end a thread **54** which engages thread **55** of button **23** forming thus an integral part of it. Spring **25** is slipped over part **52** and bears with one end against button **23** and with the other end against seat **56** of bushing **26**. Seat **57** in bushing **26** provides a limitation as to how far button **23** may be depressed. Bushing **26** has saw slots **58** which are pro-

vided for the purpose of giving springiness thereto when cap 24 is forced over it to complete the assembly.

When button 23 is depressed, pusher 29 takes along with it spring 28, extension leaf 59 riding past nose 47 of clip 31 and hooking under it, thus locking the cartridge 17 in writing position, pin 30 having pushed down the cartridge assembly 21 and 17. In order to release the cartridge being used, clip 31 is depressed at its end portion, nose 47 disengaging spring leaf 59 allowing spring 25 to return the parts 23, 27, 28, 29 and 30 to their original positions.

Cartridge assembly 21, 17 having been thus released, is brought into retracted position by means of spring 22 acting between shoulder 60 of grommet 21 and seat 61 of guide 14.

If it is desired to write in a different color, that is, with a different cartridge, the upper part of the pen is rotated 120° until pin 30 positions over the next cartridge 21' and 17'. Pin 33, being part of the upper assembly and thus also rotating, rides in groove 20 of guide 14 until locked in hole 19'. Hole 49 of sleeve or barrel section 36 at the same time comes in registry with indicator dot 18', imparting definite color information. To use the third cartridge 17'', the above process is similarly performed.

From the foregoing it is seen that there has been provided herein a multi-color retractable writing instrument comprising a cylindrical barrel or housing having relatively rotatable forward and rearward sections 13 and 36 respectively and a hollow cap 24 secured to said rearward section, the forward section 13 being tapered at its front which is provided with an orifice 13*a*, a cylindrical member 14 fixed at one end to the rear of said forward section 13, and being rotatable therewith, this member 14 projecting within the rearward section 36 and having a plurality of longitudinal openings 16, 16', 16'', a longitudinal writing implement 17 such as, for example, a ball point ink cartridge or fluid pencil, slidable in each of said openings and extending within the forward section of said housing, member 14 having a color indicating mark 18 for each of implements 17, 17' (and a third not seen) corresponding to the color in which the implement may be written and being visible through an opening or window 49 in rearward section 36, a cylindrical element 32 fixed in rearward section 36 of the housing and extending from the rear thereof short of the front thereof to provide a space in rearward section 36 in which the projected portion of member 14 is received, element 32 having a bore 35 provided with a bottom wall having a perforation 32*b* and a longitudinal slot 39 in alinement with perforation 32*b*, rearward section 36 having a perforation 48 in its wall communicating with slot 39, a device slidable in said bore, this device comprising a shank 52 provided with an offset member 40 at its forward end, an extending spring member 28 adjacent offset member 40 and a pusher 30 projecting from offset member 40, a spring operated plunger 23 projecting from cap 24, plunger 23 being secured to the rearward end of shank 52, pusher 30 being adapted to engage the rearward end 16 of one of the writing implements when the same is brought in alinement therewith by relative rotation of the barrel or housing sections and extend the writing implement through orifice 13*a* at the front end of forward housing section 13 when plunger 23 is depressed, a clip 31 secured to the housing, said clip having an abutment 47 projecting in perforation 48 in the wall of rearward section 36 and adapted to provide a stop against which the extending spring member 28 abuts when plunger 23 is depressed to extend one of the writing implements and prevent its return, spring member 28 being released from abutment 47 by manipulation of clip 31 to thereby permit the device to retract and thereby said last mentioned writing implement to also retract, cylindrical element 32 being provided with detent means 33, 34 and cylindrical member 14 being provided with circumferentially arranged perforations 48 within which said detent means will project upon relative rotation of the barrel or housing sections and when color indicating mark 18 is in register with a corresponding opening 49 in rearward section 36 and maintain pusher 30 in alinement with said latter mentioned writing implement whereby plunger 23 may be depressed to extend said latter mentioned writing implement.

Cylindrical member 14 has a rearward tubular portion 14*a* and cylindrical element 32 has its forward portion 32*a* of reduced diameter providing a space between it and the internal wall of rearward housing section 36 to accommodate rearward tubular portion 14*a* of cylindrical member 14 when the housing sections are assembled. The perforations 19 in member 14 for receiving the detent means 33, 34 and the latter are relatively so disposed that the housing rearward section 36 is locked against removal by engagement of said detent means in said perforations when identification marks are in register with their corresponding openings 49 in said housing rearward section 36 and unlocked for removal by a slight rotation of the latter relative to housing section 13 for replacement of the writing implement 17, 17'. The nose 32*a* of member 32 acts as a cam which bears against the selected writing implement or cartridge 17 when sections 36 and 13 of the pen are relatively turned and pushes the cartridge 17 forward. The pin or pusher 30 at this point is lined up with the cartridge to be projected and by depressing plunger 23 the cartridge will project to writing position.

Although the drawing and the above specification disclose the best mode in which I have contemplated embodying my invention, I desire in no way to be limited to the details of such disclosure, for in the further practical application of my invention many changes in the forms and proportions may be made as circumstances require or experience suggests without departing from the spirit of the invention within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A retractable writing instrument comprising a housing having relatively rotatable and separable front and rear sections and a cap section, said front section having an orifice at its forward end, a member fixed to said front section at the rear thereof, said member having a plurality of guide openings, a removable writing implement in each of said openings projecting within said front section, retractile means for each of said implements, means for extending a selected implement through said orifice; said means comprising a plunger projecting from said cap, a device fixed to said plunger extending within said housing rear section and carrying a pin in offset relation therewith, guide means for said device fixed in said housing rear section whereby upon relative rotation of the front and rear housing sections said pin may be positioned over a selected writing implement for extending the latter when said plunger is depressed, means for indicating the implement to be selected for extension through said orifice upon said rotation, stop means for maintaining the selected implement in extended position after being extended through said orifice, and means to release said stop means for permitting the selected implement to retract.

2. A retractable writing instrument according to claim 1, including means for locking said device against separation of said front and rear housing sections when said pin is over a selected writing implement and maintaining its position thereat until said housing sections have been further rotated, said front and rear sections being separatable for replacement of said implements when said pin is out of alinement with any of said implements.

3. A retractable writing instrument according to claim 1, wherein said indicating means comprises a mark on said

member for each writing implement and a window in said rear housing section through which said mark may be visible during relative rotation of said front and rear sections; means for locking said device against separation of said front and rear housing sections when said window is over one of said marks and maintaining its position thereat until said sections have been further rotated, said front and rear sections being separatable for replacement of said implements when said window is positioned between any two of said marks.

4. A retractable writing instrument according to claim 1, wherein said guide means for said device is provided with a projection adapted to respectively depress said writting implements during relative rotation of said front and rear housing sections.

5. A writing instrument according to claim 4, wherein said member having a plurality of guide openings also has a rearward tubular portion and said guide means for said device has its forward portion of reduced diameter providing a space between it and the internal wall of the rear housing section to accommodate said tubular portion when the housing sections are assembled.

6. A writing instrument according to claim 1, wherein said member having a plurality of guide openings also has a rearward tubular portion and said guide means for said device has its forward portion of reduced diameter providing a space between it and the internal wall of the rear housing section to accommodate said tubular portion when the housing sections are assembled.

7. A writing instrument according to claim 1, including means for locking said front and rear housing sections against separation when said pin is over a selected writing implement and maintaining its position thereat until said housing sections have been further rotated, said locking means comprising perforations in said member having a plurality of guide openings and detent means carried by said guide means for said device adapted to respectively project in said latter perforations when said pin is in alinement with a selected writing implement upon relative rotation of said front and rear housing sections.

8. A writing instrument according to claim 7, wherein the perforations in said member having a plurality of guide openings and said detent means are relatively so disposed that the front and rear housing sections are locked against removal by engagement of said detent means with one of said perforations when said indicating means has indicated the selection of a writing implement and unlocked for separation of said front and rear housing sections by a slight relative rotation of said sections for replacement of said writing implements.

9. A multi-color retractable writing instrument comprising a cylindrical housing having relatively rotatable forward and rearward sections and a hollow cap secured to said rearward section, said forward section being tapered at its front which is provided with an orifice, a cylindrical member fixed at one end to the rear of said forward section and being rotatable therewith, said member projecting within said rearward section and having a plurality of longitudinal openings, a longitudinal writing implement slidable in each of said openings and extending within said forward section of said housing, said member having a color indicating mark for each of said implements corresponding to the color in which said implement may be written and being visible through an opening in said rearward section, a cylindrical element fixed in said rearward section of said housing and extending from the rear thereof short of the front thereof to provide a space in said rearward section in which the projected portion of said member is received, said element having a bore provided with a bottom wall having a perforation and a longitudinal slot in alinement with said perforation, said rearward section having a perforation in its wall communicating with said slot, a device slidable in said bore, said device comprising a shank provided with an offset member at its forward end, an extending spring member adjacent said offset member and a pusher projecting from said offset member, a spring operated plunger projecting from said cap, said plunger being secured to the rearward end of said shank, said pusher being adapted to engage the rearward end of one of said writing implements when the same is brought in alinement therewith by relative rotation of said housing sections and extend the said writing implement through said orifice at the front end of said forward housing section when said plunger is depressed, a clip secured to said housing, said clip having an abutment projecting in said perforation in the wall of said rearward section and adapted to provide a stop against which said extending spring member abuts when said plunger is depressed to extend one of said writing implements and prevent its return, said spring member being released from said abutment by operation of said clip to thereby permit said device to retract and thereby said last mentioned writing implement to also retract, said cylindrical element being provided with detent means and said cylindrical member being provided with circumferentially arranged perforations within which said detent means will project upon relative rotation of said housing sections and when said color indicating mark is in register with a corresponding opening in said rearward section and maintain said pusher in alinement with said latter mentioned writing implement whereby said plunger may be depressed to extend said latter mentioned writing implement.

10. A writing instrument according to claim 9, wherein said writing implements are ball-point ink cartridges.

11. A writing instrument according to claim 9, wherein said clip has an extended portion by which it is secured between said cap and said rearward section of the housing.

12. A writing instrument according to claim 9, wherein said cylindrical member has a rearward tubular portion and the said cylindrical element has its forward portion of reduced diameter providing a space between it and the internal wall of the rearward housing section to accommodate said tubular portion of the cylindrical member when the housing sections are assembled.

13. A writing instrument according to claim 9, wherein the perforations in said cylindrical member for receiving said detent means and said detent means are relatively so disposed that the housing forward and rearward sections are locked against removal by engagement of said detent means in said perforations when said identification marks are in register with their corresponding openings in said housing rearward section and unlocked for removal by a slight rotation of the latter relative to said housing forward section for replacement of said writing implements.

References Cited in the file of this patent

UNITED STATES PATENTS

2,575,096	Chatelain	Nov. 13, 1951
2,596,234	Gartenmann	May 13, 1952
2,603,187	Goos	July 12, 1952

FOREIGN PATENTS

14,277	Great Britain	1909
252,365	Great Britain	May 18, 1926