July 15, 1952 C. E. FEDERICO GOOS 2,603,187

WRITING INSTRUMENT OF THE RETRACTABLE TIP TYPE

Filed Feb. 28, 1950 3 Sheets-Sheet 1

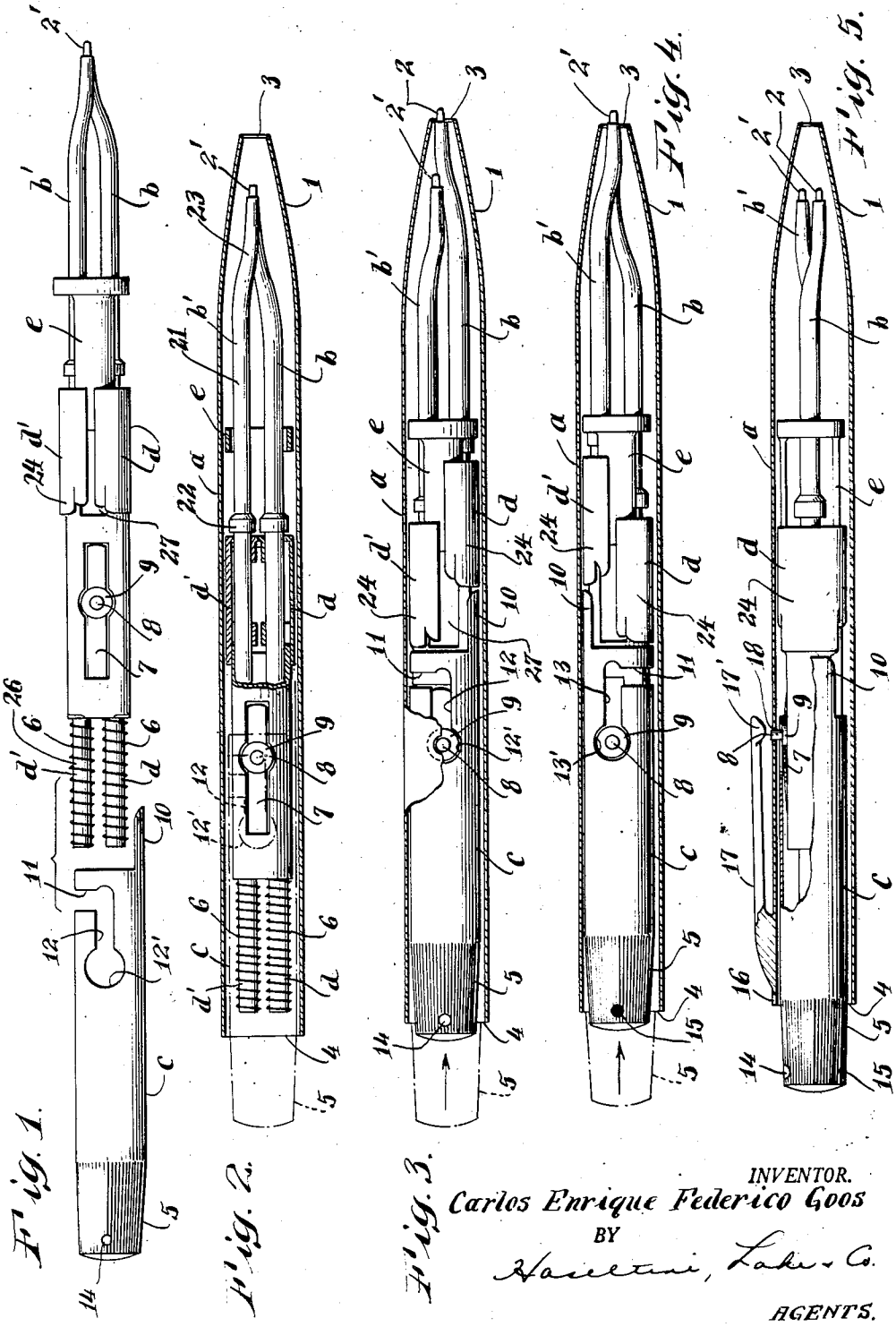


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

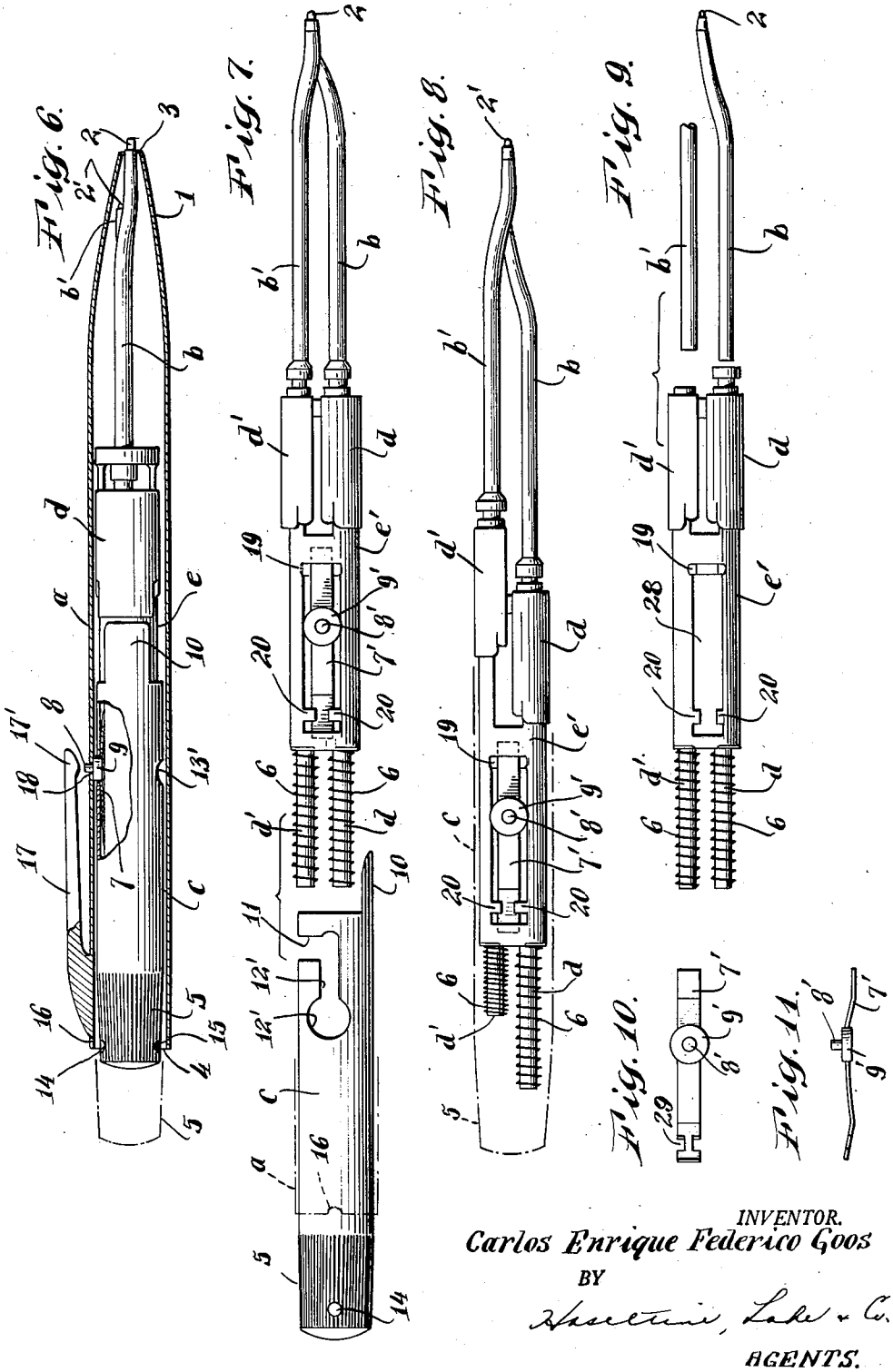
Fig. 5.

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WRITING INSTRUMENT OF THE RETRACTABLE TIP TYPE

Filed Feb. 28, 1950 3 Sheets-Sheet 2

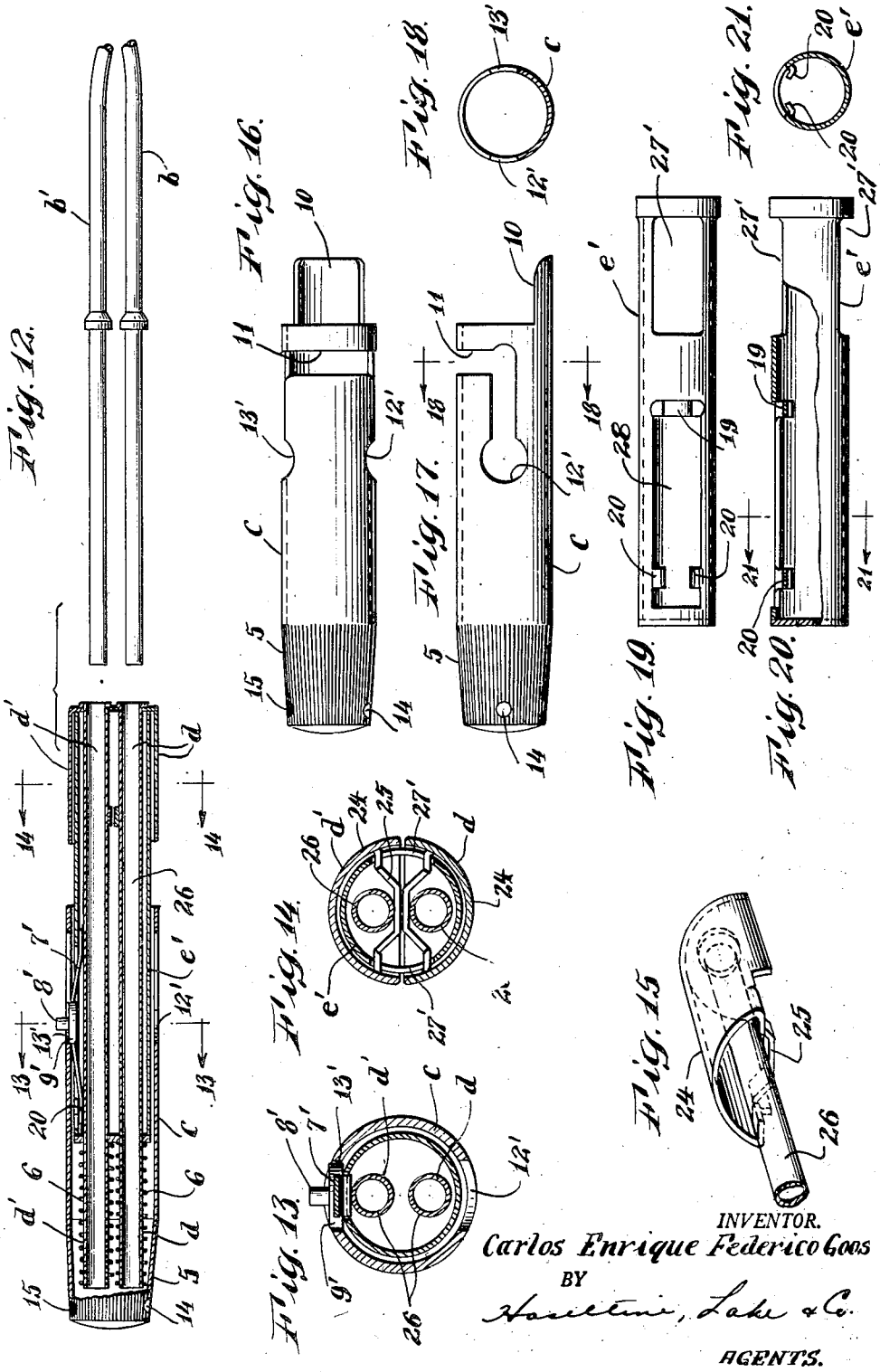


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WRITING INSTRUMENT OF THE RETRACTABLE TIP TYPE

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2,603,187

WRITING INSTRUMENT OF THE RETRACTABLE TIP TYPE

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3 Claims. (Cl. 120—42.13)

1

The present invention relates to improvements in writing instruments of the retractable tip type. The object of the invention is to provide a mechanism which is mounted on a chassis independent of the tubular holding or grip member. Such arrangement presents an important improvement over any arrangement heretofore proposed in connection with mechanical pencils and fountain pens.

A device disclosed in a prior patent application of the applicant, shows a selector member which in practice has proved to produce excellent results. However, in its arrangement on the associated parts certain inconveniences were noted, which not only cause the assembling and repairs of such units to be quite complicated, but give little security in regard to the mechanical function of the device when it is changed from retracted to projected positions.

Such inconveniences principally are due to the fact that the mechanism is supported directly on the outer cylindrical shell or grip member which, thus, acts as a supporting frame. In other words, all the parts of the mechanism depend from the said cylindrical or tubular grip member, the interior of which is practically inaccessible since its ends are normally closed by the actuating knob and the writing tip.

In view of these disadvantages, the possibility has been considered of arranging the said mechanism by way of a mounting independent of the tubular outer member, and as a result of a series of different constructions, it has been possible to attain the said object by an improved construction wherein all the essential parts of the instrument are mounted on a separable frame, or chassis, independent of the outer cylindrical gripping member.

Another object of the present invention is to provide a writing instrument, of simple construction, providing for considerable ease in the assembly of the entire mechanism of this improved writing instrument, as well as in the dismounting or disassembling thereof.

A further object of the invention is to provide a writing instrument of the kind referred to, which is reliable in its operation, and so constructed that its highly precise parts, will not be subjected to excessive wear in spite of intense use being made of the instrument.

Another object is to provide a fountain pen for writing, in at least two different colours, which is simple to use either when selecting, or when projecting or retracting, any of the different coloured writing tips.

2

Another object is to provide a writing instrument which in spite of being capable of writing in a plurality of colours, is of light weight and of a section similar to that of single-colour writing instruments.

Other objects of the present invention will appear as the following description proceeds, wherein reference will be made to the hereunto appended drawings illustrating the improved writing instrument in one preferred form of embodiment.

In these drawings:

Fig. 1 is an exploded side elevational view showing a frame with a pair of writing elements mounted thereon and a selector-actuator member of a writing instrument embodying the present invention;

Fig. 2 is a side elevational view, partly broken away and in section, showing the frame and writing elements of Fig. 1 mounted within an outer casing or gripping member, with the selector-actuator member of Fig. 1 illustrated in broken lines and with both writing elements shown in their inoperative positions retracted into the outer casing;

Fig. 3 is a side elevational view, partly broken away and in section, of a complete assembly of the parts illustrated in Figs. 1 and 2, with the selector-actuator member being positioned for extending one of the writing elements from the outer casing into its operative position;

Fig. 4 is a view similar to Fig. 3, but with the selector-actuator member being positioned for causing the extension from the outer casing of the other of the writing elements;

Fig. 5 is a longitudinal, sectional view of the complete assembly shown in Figs. 3 and 4, but in a plane at right angles to the views of the latter figures and with both writing elements shown in their retracted or inoperative positions;

Fig. 6 is a view similar to Fig. 5, but with the selector-actuator member being shown positioned for extending one of the writing elements from the outer casing, as in Fig. 3;

Fig. 7 is an exploded side elevational view, similar to Fig. 1, but showing elements of a writing instrument constructed according to another embodiment of the present invention;

Fig. 8 is a side elevational view of a sub-assembly of the frame and writing elements of Fig. 7, but shown with one of the writing elements in extended position and with the selector-actuator member being partially illustrated in broken lines;

Fig. 9 is an exploded side elevational view of

certain of the elements included in the embodiment of Figs. 7 and 8;

Fig. 10 is a detail plan view of an element included in the embodiment of Figs. 7 and 8;

Fig. 11 is a side view of the element of Fig. 10;

Fig. 12 is an exploded side elevational view, partly broken away and in longitudinal section, showing the writing elements, frame and selector-actuator member of the embodiment in Figs. 7 to 11, inclusive;

Fig. 13 is a transverse sectional view taken along the line 13—13 of Fig. 12;

Fig. 14 is a transverse sectional view taken along the line 14—14 of Fig. 12;

Fig. 15 is a respective view of a slide element for mounting each of the writing elements in either of the illustrated embodiments upon the frame thereof;

Fig. 16 is a detail plan view, on an enlarged scale, of the selector-actuator member included in either of the illustrated embodiments;

Fig. 17 is a detail side elevational view of the selector-actuator member of Fig. 16;

Fig. 18 is a transverse sectional view taken along the line 18—18 of Fig. 17;

Fig. 19 is a side elevational view of the frame element included in the embodiment of Figs. 7 to 14, inclusive;

Fig. 20 is a plan view, partly broken away and in longitudinal section, of the frame element of Fig. 19; and

Fig. 21 is a transverse sectional view taken along the line 21—21 of Fig. 20.

In all these figures, the same reference characters denote like or corresponding parts, with those units formed of several elements being identified by letters.

With reference to these drawings, *a* is the tubular outer casing or gripping member which, as is usual, is formed as a cylinder having a sloping or tapering end 1 through which may alternatively project the writing tips 2, 2′ of the writing elements *b*, *b*′, respectively (two in the case illustrated), so arranged that by the action of a selector and advancing or actuating mechanism *c*, one or the other of said writing tips may selectively be projected through the open end 3 of cylinder *a* in order to expose the writing point 2 or 2′ thereof, for use. At its end remote from the tapered portion 1, the tubular member *a* has an opening 4 through which an operating knob 5 of the selector-actuator device *c* is adapted to project.

Each of the writing elements *b*, *b*′ is carried by a slide member *d*, *d*′, respectively, which is slidably mounted on a frame element *e* for movement longitudinally relative to the latter. The writing elements *b*, *b*′, slide members *d*, *d*′, frame element *e* and selector-actuator member *c* are initially brought together to provide a sub-assembly, and this sub-assembly is then removably secured within the outer casing or gripping member *a*.

Each of the writing elements *b*, *b*′ is in the form of an elongated tubular member 21 having a collar 22 intermediate its ends and off-set adjacent the end thereof carrying the writing tip or point, as at 23 (Fig. 2). Each of the slide members *d*, *d*′ (Fig. 15) includes a substantially semi-cylindrical member 24 having an apertured wall extending across one end thereof and formed with a saddle 25 extending transversely adjacent the end remote from said end wall. Each of the slide members further includes an elongated tubular member 26 extending longitudinally through the apertured wall of member 24 and fixedly supported on the saddle 25 of the latter.

The frame element *e* is generally cylindrical in configuration and is formed with longitudinally extending cutouts 27, at diametrically opposed locations, through which the saddles 25 of the respective slide members *d* and *d*′ extend, with the semi-cylindrical members 24 of the slide members being slidable axially on the outer surface of the cylindrical frame. The writing elements *b* and *b*′ extend into the tubular members 26 of the related slide member *d* and *d*′, and the frame *e* is formed with suitable aligned openings at its opposite ends through which the tubular members 26 and the writing elements are adapted to slidably extend.

As seen in Figs. 1 and 2, coiled spring elements 6 are disposed around the members 26 of the slide members *d* and *d*′, abut the frame *e* at one end and are fixed, at their opposite ends, to ends of member 26 to yieldably urge both of the slide members *d* and *d*′ in the direction retracting the writing tips of the associated writing elements into the outer casing *a*, as in Fig. 2.

Frame *e* is further provided with a resilient tongue 7 which is longitudinally bowed and secured to the frame *e* in a suitable recess formed in the latter. At its center, tongue 7 has two concentric projections forming stop members 8 and 9, the former projecting with its free end beyond the top of the latter, and being also of smaller diameter. This stop 8 hereinafter is termed the "primary" stop since its function is to lock the frame member *e* and the other elements making up the aforementioned sub-assembly to the outer tubular shell *a*, whereas the stop 9, of lesser height but greater diameter, is termed the "secondary" stop since it is designed to lock the selector-actuator *c* against movement when either one of the writing members *b* or *b*′ is outwardly projected for use.

The selector-actuator member *c*, shown in detail in Figs. 16, 17 and 18, is generally cylindrical in configuration and is closed at one end to provide the knob 5. The member *c* has an inner diameter sufficient to permit it to telescope over the frame *e*, and the selector-actuator member, when telescoped over the frame, is movable axially and rotatably relative to the latter. An extension or projection 10 is formed on the open end of member *c* for alignment with the semi-cylindrical member 24 of the slide member *d*, as shown in Figs. 3, 5 and 6, or with the member 24 of the slide member *d*′, as shown in Fig. 4.

The member *c* is formed with a transverse guide slot 11 terminating at its ends in longitudinal slots 12 and 13 extending from slot 11 toward the knob 5 and formed with circular enlargements 12′ and 13′, respectively, at their ends remote from slot 11. The portions 11, 12 and 13 of the guide slot are of a width corresponding to the thickness of stop member 8, while the circular enlargements 12′, 13′, correspond to the diameter of the secondary stop 9.

The selector-actuator *c* has thereon two indications 14, 15 oppositely disposed at the sides of knob 5. Indication 14, corresponding to the light colour writing tip is in line with the longitudinal portion 12 and circular enlargement 12′ of the guide slot; while indication 15 is in line with portion 13 and enlargement 13′ at the opposite side of such guide slot.

The tubular holder *a* at its rear or open end 4 is formed with a small groove or edge cut-out 16 (Figs. 5 and 6) which is provided as a registering

means to denote that writing member which may be outwardly projected when either one of indications 14 or 15 registers axially with the said groove 16.

The tubular casing or gripping member *a* bears adjacent its rear or open end 4 a clip 17 at the free end of which is formed a nose 17' registering with an aperture 18 (Figs. 5 and 6) serving for locking the frame member and associated mechanism within the outer shell *a*, in co-action with the protruding primary stop 8.

The nose 17', on the clip 17, serves as a releasing means for stop 9 through action upon primary stop 8 since both stops are concentrically arranged with respect to each other and to aperture 18.

As the thickness of stop 8 corresponds to the width of portions 11, 12 and 13 of the guide slot for the selector-actuator member *c*, when the said guide slot receives stop 8, the member *c* becomes locked on the frame member *e*, as shown in Figs. 3, 4, 5 and 6, while being free to be rotated and axially moved relative to the frame member *e* within the limits defined by the slot portions 11, 12 and 13.

After the foregoing connection is effected, when the slot portion 11 receives stop 8, the member *c* may be rotated through an angle of 180 degrees so that the stop 8 passes from the longitudinal slot portion 12 to the opposite portion 13, and vice-versa.

When the selector-actuator member *c* is rotatably positioned so that the stop 8 is received in slot portion 12, as in Fig. 3, the projection 10 of member *c* is aligned with the member 24 of slide member *d*, while rotation of member *c* through 180° to position the stop 8 within longitudinal portion 13 of the slot, as in Fig. 4, serves to align the projection 10 with the member 24 of slide member *d'*. The illustrated relationship between the positions of the slot portions 11, 12 and 13 and of the projection 10 permits the member *c* to serve as a selector for determining which of the writing elements *b* or *b'* will be actuated to an operative position. Such actuation of the writing element having its associated slide member aligned with the projection 10 is achieved by merely displacing member *c* inwardly, by pressure on its knob 5, to further telescope over frame *e* so that the projection 10 pushes the aligned member 24 ahead of it, against the action of the associated spring 6, to project the selected writing element beyond the other writing element, as in any of Figs. 3, 4, 5 and 6. When the member *c* has been displaced axially a distance sufficient to dispose either of the slot enlargements 12' or 13' for receiving the stop 9, the latter is urged radially into the slot enlargement and locks the extended writing element in its extended or operative position.

In assembling a writing instrument embodying the present invention, the frame *e*, slide members *d* and *d'*, and writing elements *b* and *b'* are initially brought together, as shown in Fig. 1, and the stop 8 is held in a depressed position while the selector and actuator member *c* is telescoped over frame *e* to dispose the stop 8 in the guide slot provided by portions 11, 12 and 13. The above parts are then inserted, as a unit or sub-assembly, into the outer casing *a* until the stop 8 engages in aperture 18 of the latter, and then the stop 8 and aperture 18 coact to retain the sub-assembly within the outer casing.

In Figs. 3 to 6, specific examples of the operation of the above described device are illustrated. For example, when knob 5 is turned to the position shown in Fig. 5, projection 10 of selector *c* will be in line with slide *d* carrying the writing member *b* having the light colored writing tip 2. When knob 5 is pushed inwards, as indicated in Figs. 3 and 6, the projection 10 will push the corresponding slide before it causing the writing point, or tip 2, of member *b* to project outwards through the end 3 of shell or casing *a*, ready for use. The parts are locked in this position by stop 9 projecting through the enlarged slot portion 12', after the member *c* is advanced along the guide afforded by the portion 12 of the guiding slot. Alternatively, when knob 5 is placed in the position shown in Fig. 4, the projection 10 is in line with the slide *d'* carrying the writing member *b'* which corresponds to the dark colour writing tip. With the knob 5 thus positioned, pushing it inwards, as indicated by the arrow of Fig. 4, causes the said projection 10 to move the slide *d'*, controlling the dark writing member *b'*, whereafter, the latter is locked in operative position through secondary stop 9 emerging through the enlarged circular slot portion 13'.

Stop member 8 is of such height that it protrudes not only through the guide slot of selector *c*, but also through the aperture 18 in the holder *a*, and thereby acts as a releasing press-button to release the secondary stop 9 from either one of the circular enlargements 12' or 13', as well as to retain the sub-assembly in casing *a* in the manner described above.

For the actuation of stop 8 as a releasing press-button, use is made of clip 17 which, when pressed down, has its nose 17' act on stop 8 to urge stops 8 and 9 radially inward and release stop member 9 from within either enlargement 12' or 13'. The action of nose 17' on primary stop 8, does not affect the retention of frame member *e* within casing *a* since the stop 8 continues to engage in aperture 18 of the holder or casing *a*. Thus, when it is desired to return either one of the extended writing elements *b* or *b'* to its inoperative position, it is only necessary to press the stop 8 radially inward, by action of clip 17 thereon, to free stop 9 from the slot enlargement 12' or 13', as the case may be, so that the spring 6 associated with the extended writing element may then operate to retract the latter into the casing *a*.

While the resilient tongue 7, having stops 8 and 9 thereon, may be secured to the frame *e* by soldering, as in the embodiment of Figs. 1 to 6, the frame element may be formed, as shown in Figs. 7 to 14 and 19 to 21, to hold the tongue in assembled position without requiring any securing means such as the above mentioned soldering. Thus, in the embodiment of Figs. 7 to 14 and 19 to 21, the frame *e'* is formed with a longitudinal cut-out 28 having an inwardly offset female holding member 19, extending across one end thereof, and a pair of ears or tabs 20 extending from the side edges thereof adjacent the other end. The tongue 7' (Figs. 10 and 11), adapted to be retained by frame *e'*, is formed of an elongated strip of resilient material which is bowed in its central portion and provided with notches 29 in the side edges adjacent one end. In mounting the tongue 7' on frame element *e'*, th end of the tongue member, remote from notches 29, is inserted into the space defined between female holding member 19 and the under surface of the frame element adjacent the related end of opening 28, and the tongue 7' is then bent longitudinally so that the ears 20

may pass through notches 29. When tongue 7' is released, the ears 20 will be disposed above the end portion thereof having the notched side edges and will cooperate with female member 19 in retaining the tongue 7' and the stops 8' and 9' carried thereby in assembled position on the frame e', as in Figs. 7 and 8.

With the exception of the manner of mounting the stop carrying tongue 7' upon the frame e', the embodiment of Figs. 7 to 14 is substantially the same as that illustrated in Figs. 1 to 6. Accordingly, each of the writing elements b, b' is mounted on a corresponding slide member or assembly d, d', respectively. Each slide member includes a semi-cylindrical member 24 slidable on the outer surface of the frame e' and an elongated tubular member 26 extending axially through the frame and secured to a saddle 25 which extends laterally through the cut-outs 27' of the frame, as shown in Fig. 14. The writing elements b and b' are mounted in the tubular members 26 of the related slide members which are urged by springs 6 to positions for retracting the writing tips. A selector-actuator member c, formed as hereinbefore described, telescopes over the frame e' and is held on the latter by engagement of the stop 8' within the guide slot formed by slot portions 11, 12 and 13. Finally, the subassembly constituted by the selector-actuator member c, the slide member assemblies d and d', the frame e' and the writing elements b and b' is inserted into an outer casing or gripping member similar to the casing a of the previously described embodiment.

The operation of the embodiment in Figs. 7 to 14 and 19 to 21 is the same as that described in connection with the device of Figs. 1 to 6.

As described, the assembling of a device constructed according to either of the illustrated embodiments is a most simple operation and, when it should become necessary to take the instrument apart, such assembly is simply effected without the necessity of employing any tool, by pressing down the primary stop 8 until it is released from within the aperture 18 of the outer casing a, thus permitting the frame member e and selector-actuator c to be withdrawn from the tubular holder or outer casing a.

Evidently, in carrying the present invention into practice, different modifications of arrangement may be made, without departing from the spirit and scope thereof as clearly defined in the appended claims.

I claim:

1. A writing instrument comprising a tubular member having an aperture therein, a frame disposed in said tubular member in a fixed position relative thereto, at least two spring actuated slides mounted on said frame, a writing member attached to each of said slides adjacent the operating end of said instrument, a selector actuator slidably and rotatably disposed within said tubular member and having a slot formed therein, a knob on said selector actuator extending through the rear of said tubular member and adapted to rotate said selector actuator into contact with a selected one of said slides, each of said slides being adapted to project the end of the writing member attached thereto beyond said tubular member into writing position upon pressure being exerted against said knob to displace said selector actuator in contact with the respective slide, a resilient member secured to said frame, a primary and secondary projection on said resilient member, said primary projection extending through the slot in said selector actuator and the aperture in said tubular member and adapted to lock said frame and said selector actuator to said tubular member, said secondary projection extending through the slot in said selector actuator to selectively lock the latter in its condition for projecting the end of a selected one of said writing members into writing position.

2. A writing instrument as claimed in claim 1, in which said primary and secondary projections are concentrically arranged, said secondary projection being of larger diameter than said primary projection, the slot in said selector actuator having a transverse portion terminating in two longitudinal sections having enlarged portions for the reception of said secondary projection.

3. A writing instrument as claimed in claim 2 in which a clip is provided on said tubular member, said clip being adapted to press against said primary projection to release said secondary projection from locking engagement with said enlarged portions of the slot in said selector actuator.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,593,347	Nardi	July 20, 1926
2,162,249	Durrier	June 13, 1939
2,468,258	Fahringer et al.	Apr. 26, 1949
2,500,979	Coler-Dark	Mar. 21, 1950

FOREIGN PATENTS

Number	Country	Date
697,650	Germany	Oct. 18, 1940