

Feb. 24, 1959

D. J. JACOBSON  
WRITING INSTRUMENT

2,874,680

Filed March 25, 1957

2 Sheets-Sheet 1

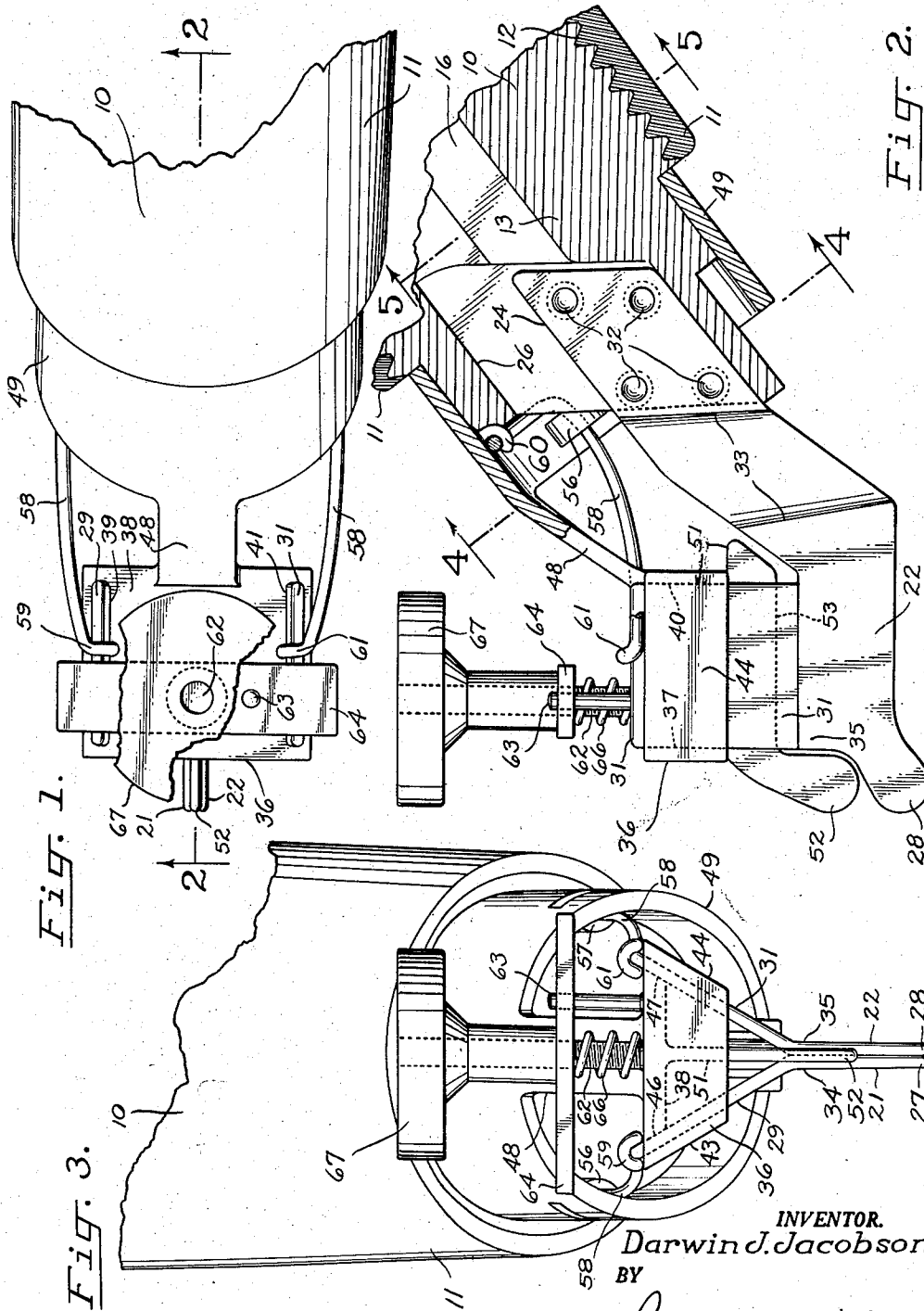


Fig. 1.

Fig. 3.

Fig. 2.

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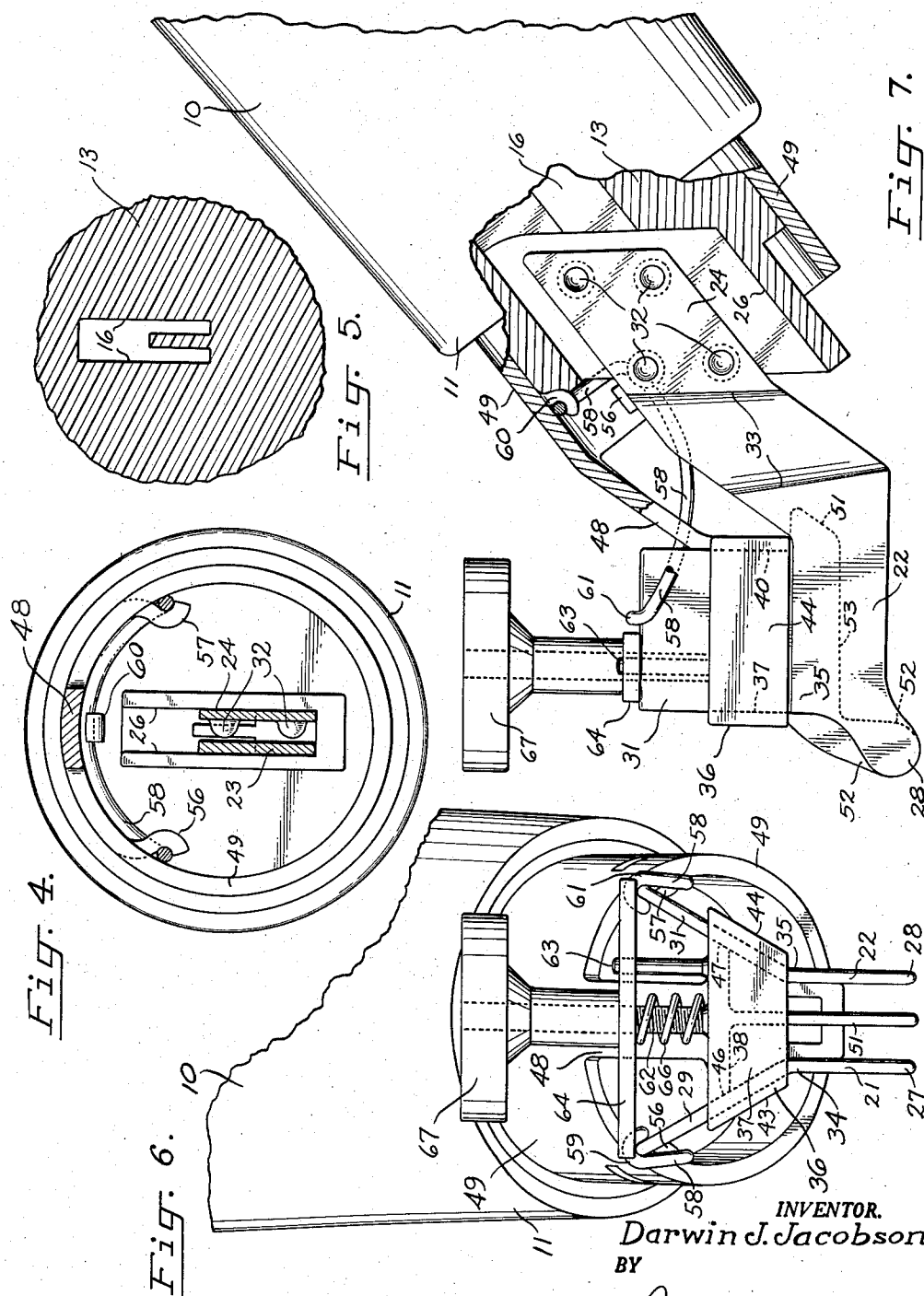
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2 Sheets-Sheet 2



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## WRITING INSTRUMENT

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Application March 25, 1957, Serial No. 648,266

9 Claims. (Cl. 120—45.6)

This invention relates to an improved writing or drawing instrument and more particularly to an improved instrument of the type described having means for controlling and regulating the width or breadth of line inscribed by the instrument.

Generally it is an object of this invention to provide an improved writing and drawing instrument by means of which clear, sharp, and distinct lines may be drawn, the width of the line inscribed by the instrument being readily controlled by the user thereof.

In writing, drawing, and calligraphy, the advantages incident with the use of a writing instrument having a variable breadth of line have long been recognized. In the case of ordinary hand writing, for instance, many users find it convenient to vary the thickness or breadth of line, depending upon the clarity required and the size of the figures or letters drawn. In drafting, the breadth of a line is subject to wide variation, depending upon the importance of the line inscribed. Similarly, in the case of calligraphy, it is highly desirable to be able to produce a wide variety of line widths or breadths.

Generally, the writing instrument of this invention comprises a pen body portion which is held in the user's hand and which conventionally would have a cylindrical or semicylindrical shape. Carried at one end of the body portion and adapted to engage a writing surface are a pair of inscribing or blade elements, each having a nib portion which rides over the writing surface and imparts ink on the surface. The writing instrument includes a variable spacing means operable to spread apart the nib portions of the inscribing elements through the action of a wedging portion which engages inwardly disposed faces of the inscribing elements and spreads them apart as the wedging portion is advanced between the inscribing elements. In the preferred embodiment of this invention, the variable spacing of the nibs is achieved by variations in the writing pressure exerted downwardly upon the writing instrument.

More specifically, the preferred embodiment of this invention includes a confining mechanism or means engaging outwardly disposed faces of the inscribing elements or blades operable to bring together the inscribing elements and the nib portions carried by the inscribing elements when the wedging portion is withdrawn outwardly from between the inscribing elements. Biasing means interposed between the inscribing elements and the confining mechanism normally urges, in the absence of a writing pressure exerted downwardly upon the writing instrument, the confining mechanism against the inscribing elements so as to bring the nib portions of the elements together. Writing pressure exerted on the writing instrument spreads the nib portions of the writing instrument apart against the urging of the biasing means. Preferably, an adjustable limit means is included for limiting movement of the wedging portion downwardly between the inscribing elements, and thereby the maximum breadth of line inscribed by the instrument.

To enhance the feed of ink in the instrument and to

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assist in laying out the ink when a broad line is being drawn, the instrument is provided with a supplemental nib portion which engages the writing surface after the nib portions of the inscribing elements have been spread apart a predetermined amount. Structure associated with the supplemental nib projects downwardly between the nib portions of the inscribing elements when they are spread apart to insure adequate capillary action of the ink feed to the nibs of the instrument. The inscribing elements are mounted in the instrument by means of tongue portions at the inner ends of the inscribing elements slidably received in a receiving chamber formed in the body of the pen. The slidable mounting of the inner ends of the inscribing elements as well as the flexible nature of the inscribing elements accommodate movement of the nib portions laterally and apart from each other as the writing pressure exerted on the instrument is increased.

A more specific object of this invention, therefore, is to provide an improved writing instrument capable of making a light or heavy line depending upon, and responsive to, the amount of writing pressure exerted upon the body of the pen.

Another object of the invention is to provide a writing instrument having a pair of inscribing elements provided with nibs which has a supplemental point or nib operable to come in contact with the writing surface after the writing pressure upon the pen reaches a predetermined amount and the nibs of the inscribing elements have been spread apart thereby to insure the production of a solid broad line.

A related object of the invention is to provide such a writing instrument wherein the supplemental nib has associated therewith blade structure co-operating with the sides of the inscribing elements to feed ink from the reservoir in the pen to the nibs of the inscribing elements.

A further object is to provide a writing instrument, having a pair of inscribing elements and nibs, so constructed that the nibs of the inscribing elements tend to level themselves with one another in the absence of writing pressure exerted on the instrument and wherein the nibs adjust themselves vertically with respect to one another to accommodate the variations in the contact angle of the nibs with the writing surface depending upon the writing habits of the user of the instrument.

Still further, it is an object of the invention to provide a writing instrument, readily adjustable as to breadth of line, which rides smoothly over a writing surface without excessive chatter, scratching, or other noises, irrespective of whether the pen is moved forward or backward over the writing surface, or from side to side.

Still another object is to provide a writing instrument which will inscribe a line of variable breadth and which may be adjusted so as to limit the breadth of line inscribed by the instrument.

And yet another object of the invention is to provide a writing instrument of the type described which is of sturdy construction, capable of withstanding extensive use, and which may be readily repaired in the event that portions of the pen become damaged during use.

These and other objects and advantages are attained by the present invention described hereinbelow in conjunction with the accompanying drawings wherein:

Fig. 1 is top view, considerably enlarged, of a writing instrument embodying this invention, illustrating the position of the inscribing elements of the instrument in the absence of any writing pressure applied to the instrument;

Fig. 2 is a sectional view along the line 2—2 in Fig. 1; Fig. 3 is an end view of the writing instrument illustrated in Fig. 1;

Fig. 4 is a sectional view along the line 4—4 in Fig. 2;

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Fig. 5 is a sectional view along the line 5—5 in Fig. 2; Fig. 6 is an end view of the instrument showing the condition of the parts when writing pressure is applied to the writing instrument; and

Fig. 7 is a side view, partially broken away, showing the instrument with the condition of the parts illustrated in Fig. 6.

Referring to the drawings where an embodiment of this invention is illustrated, and more particularly to Figs. 1 and 2, 10 indicates generally the body of the pen. Body 10 includes a cylindrical sleeve section 11, containing internal threads 12, which is threaded onto and secured to a cylindrical core 13. Extending longitudinally along core 13 is an ink feed passage 16 which may have a channel shaped cross-section, as best illustrated in Fig. 5. Feed passage 16 is conventional and communicates at its upper, rear end with the usual ink bladder (not shown) carried within the body of the instrument and covered by sleeve portion 11. As is customary with conventional pens, means are included for compressing the ink bladder and subsequently releasing the bladder to enable filling of the bladder by drawing ink inwardly through passage 16 when the bladder is allowed to expand.

Carried side by side at the lower end of body 10 are a pair of inscribing elements or blade elements 21 and 22. Referring to Figs. 2, 4, and 7, each of the blade elements 21, 22 has at its inner end a tongue portion, indicated at 23 and 24, respectively. The tongue portions project into and are slidably received in a receiving chamber 26 formed at the lower end of the core 13.

Blade elements 21 and 22 are provided at their lower, outer ends with nib portions 27 and 28, respectively. The nibs are carried at the lower end of the blade elements and engage the writing surface during use of the instrument. The nibs are rounded at their forward and rear edges, and along their side edges, so as to ride freely over the writing surface.

Intermediate the nib and tongue portions of each blade element is an ear portion, indicated at 29 and 31, respectively. These project upwardly and incline outwardly, as best seen in Figs. 3 and 6, from base portions 34 and 35 of the inscribing elements.

With reference to Fig. 4, tongue portions 23 and 24 of the blade elements lie parallel to and adjacent one another in chamber 26. Ink feeds downwardly through channel 16 into chamber 26 and thence between tongue portions downwardly to the nib portions for the inscribing elements. The blades or inscribing elements are spaced apart in chamber 26 in any convenient manner, as by depressions or dimples 32 stamped into the tongue portion of one of the blade members.

Each of the inscribing elements is ground or milled out slightly, as at 33, so that the blade across the area 33 is somewhat thinner than the rest of the blade. This contributes flexibility to each blade at this point, permitting the outer end of each blade to flex outwardly relative to the inner end or tongue portion for each blade.

Carried above base portions 34, 35 of each blade and co-operating with the inner and outer faces of the ear portions for each blade is a guide structure indicated generally at 36 which regulates the spacing of the nib portions. Guide structure 36 functions as a variable spacing mechanism for the nib elements of this invention. Guide structure 36 includes a front wall 37, a top wall 38, rear wall 40, and side walls 43 and 44. Top wall 38 has slots 39 and 41. (best seen in Fig. 1) formed therein and slidably receiving each of the ear portions 29, 31. The ear portions slide in guide structure 36 against the inner faces of side walls 43, 44 and against edge faces 46 and 47 presented by slots 39 and 41. The guide structure is attached to body 10 of the writing instrument by means of a neck 48, attached at its lower end to top wall 38 and its rear, upper end to

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a clamping ring 49. Clamping ring 49 is secured, as by press fitting, to core 13 of the writing instrument.

Depending downwardly from top wall 38 is a supplemental blade portion 51 carrying at its lower end a supplemental nib portion 52. As best seen in Fig. 2, in the absence of writing pressure on body 10, the base of blade 51, indicated at 53, is spaced vertically above the juncture of the ear portion for each of the blade elements 21, 22 and bases 34, 35 of these blade elements. It should also be noted that nib 52 is spaced vertically over the upper edges of nibs 27 and 28. Blade portion 51 and nib 52 enter between the bases and nibs of blades 21, 22 after the outer ends of the blades have been spread apart so as to accommodate their entry as described hereinbelow.

When writing pressure is exerted on the instrument of this invention, guide structure 36 moves downwardly, by reason of the force delivered through neck portion 48, relative to ear portions 29, 31. Tongue portions 23 and 24 are free to slide upwardly within receiving chamber 26, the parts, when guide structure 36 is fully depressed, occupying the position illustrated in Figs. 6 and 7. As top wall 38 of the guide structure is advanced inwardly between the inner faces of ear portions 29, 31, base portions 34, 35 and nibs 27, 28 are spread apart accompanied by flexure of the inscribing elements at area 33. Top wall 38 acts as a wedging portion, spreading the nibs of the instrument laterally from each other as it is advanced downwardly between the ear portions. Base 53 of blade 51 is spaced a sufficient distance above the juncture of bases 34, 35 with ear portions 29, 31 so that base 53 does not enter the area between the bases of blade elements 21, 22 until they have been spread apart by top wall 38. When nibs 27, 28 are spread apart, supplemental blade portion 51 co-operates with the inner faces of base portions 34, 35 in feeding ink by capillary action to the end of the instrument. Supplemental nib 52 contacts the writing surface after nibs 27, 28 have been spread apart a predetermined amount, insuring that a full, even line is applied to the writing surface even when nibs 27, 28 are fully extended.

Referring in particular to Figs. 1, 3, and 4, secured proximate the lower end of clamping ring 49 by means of brackets 56, 57 and 60 stamped in the clamping ring, is a biasing mechanism or spring 58. The outer ends of spring 58 are seated by hook portions 59 and 61 on the upper edges of ear portions 29 and 31, respectively. Spring 58 urges the outer ends of blade elements 21 and 22 downwardly relative to guide structure 36 thereby to withdraw top wall 38 of the guide structure from between the inner faces of the ear portions and at the same time draw up outer walls 43 and 44 against the outer faces of the ear portions. Walls 43 and 44 thus function as a confining mechanism operable to close the nib portions of inscribing elements 21, 22 upon the release of writing pressure applied to the writing instrument.

Projecting upwardly from and secured to the upper face of top wall 38 is a threaded stud 62. Laterally disposed from stud 62 and secured to top wall 38 is a guide pin 63. Seated around stud 62 and guide pin 63 is a limiting bar 64. A compression spring 66 encircles threaded stud 62 and has its lower end abutting the top face of top wall 38 and its upper end abutting the lower face of limiting bar 64. A hand knob 67 is screwed over the upper end of stud 62. Hand knob 64 and the limiting bar provide a manually adjustable means for vertically positioning bar 64 relative to top wall 38, the bar 64 moving either up or down on stud 62 and pin 63 depending upon whether knob 64 is turned to move down on or to back off of stud 62. The bar limits upward movement of the ear portions relative to the guide structure. This enables the user of the instrument to set the variable spacing mechanism for a maximum spacing of nibs 27, 28. For a given setting of hand knob 67,

nibs 27 and 28 spread apart in response to writing pressure exerted on the writing instrument until such time as the writing pressure is sufficient to cause the ear portions to engage limiting bar 64 which limits further spreading of the nibs.

From the above description, it is obvious that the herein disclosed invention has a number of advantages not present in constructions known to date. The nibs of the writing instrument are spread apart by a wedging portion which engages the inner faces of the inscribing or blade elements and returned to a closed condition by side walls 43 and 44 engaging the outer faces of the blade elements. Thus, in effect, movement of the nibs in either direction is brought about by a positive camming action imparted to the blade elements. Return spring 58 may be selected so that the writing pressure required to bring about a certain separation of the nibs is that most convenient for the particular user. The return spring is easily replaced in the event that the pen is to be used by another or in the event the spring becomes worn out.

Whether the nibs are in a contracted or extended position, an adequate supply of ink is provided the nibs through the capillary action occurring on the inner faces of the blade elements. Base 53 of the intermediate or supplemental blade portion facilitates the feed of ink when the nibs are fully thrust apart.

The nibs for the inscribing elements, as well as the supplemental nib, are conformed as shown in Figs. 2 and 7, enabling the instrument to be drawn either backward or forward or from side to side on a writing surface without appreciable chattering or scratching irrespective of the writing pressure exerted on the instrument.

The writing instrument may be revolved about its longitudinal axis in the user's hand so that the nibs of the instrument engage a writing surface at an angle deviating from the normal position illustrated in Figs 3 and 6. Each of the blade or inscribing elements is independently movable in the guide structure, against the biasing action of return spring 58, enabling the instrument to be used with the nibs of the instrument inclined relative to the writing surface without harm to the instrument.

If desired, the instrument may be dip filled, and ink collected in the space between the upper portions of the inscribing elements and the space between the ear portions of the inscribing elements.

The writing instrument of this invention is particularly useful for drafting purposes. When the instrument is raised from a writing surface, the nibs of the instrument come together, holding the ink between the blades of the instrument. When a line is drawn, the nibs spread apart and the ink flows instantly from the blades onto the writing surface. The substantially instant flow of ink from the nibs eliminates the necessity of having to draw several practice lines prior to ruling a line on a drafting board, as must frequently be done with conventional pens.

It is claimed and desired to secure by Letters Patent:

1. A writing instrument comprising an elongated body portion, a pair of inscribing elements yieldably mounted side by side at one end of said body portion whereby the lower ends of said inscribing elements are transversely movable relative to said body portion, each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface, and variable spacing means secured to said body portion operable to spread apart said nib portions, said variable spacing means having a wedging portion slidable relative to said inscribing elements spaced intermediate said inscribing elements engaging inwardly disposed faces of said inscribing elements and adapted to spread said nib portions laterally from each other upon advancing said wedging portion between said inscribing elements, said wedging portion advancing between said inscribing ele-

ments upon the application of writing pressure on said instrument.

2. A writing instrument comprising an elongated body portion; a pair of inscribing elements yieldably mounted side by side at one end of said body portion whereby the lower ends of said inscribing elements are transversely movable relative to said body portion; each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface; and variable spacing means fixed to said body portion operable to spread apart said nib portions; said variable spacing means having a wedging portion slidable relative to said inscribing elements spaced intermediate said inscribing elements engaging inwardly disposed faces of said inscribing elements and adapted to spread said nib portions laterally from each other upon advancing said wedging portion between said inscribing elements, and confining means slidable relative to said inscribing elements engaging outwardly disposed faces of said inscribing elements and adapted to bring together said nib portions upon withdrawing said wedging portion from said inscribing elements, said wedging portion advancing between said inscribing elements upon the application of writing pressure on said writing instrument.

3. A writing instrument comprising an elongated body portion; a pair of inscribing elements yieldably mounted side by side at one end of said body portion whereby the lower ends of said inscribing elements are transversely movable relative to said body portion; each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface; and variable spacing means secured to said body portion operable to spread apart said nib portions; said variable spacing means having a wedging portion slidable relative to said inscribing elements spaced intermediate said inscribing elements engaging inwardly disposed faces of said inscribing elements and adapted to spread said nib portions laterally from each other upon advancing said wedging portion between said inscribing elements, confining means slidable relative to said inscribing elements engaging outwardly disposed faces of said inscribing elements and adapted to bring together said nib portions upon withdrawing said wedging portion from said inscribing elements, and spring means operatively interposed between said inscribing elements and said confining means urging said nib portions together.

4. A writing instrument comprising a body portion, a pair of inscribing elements mounted side by side at one end of said body portion, each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface, variable spacing means secured to said body portion operable to spread apart said nib portions, said variable spacing means having a wedging portion slidable relative to said inscribing elements, said wedging portion being spaced intermediate said inscribing elements and engaging inwardly disposed faces of said inscribing elements thereby to spread said nib portions laterally from each other upon advancing said wedging portion between said inscribing elements, and a supplemental nib portion carried by said body portion intermediate said inscribing elements movable relative to said inscribing elements with said wedging portion, said supplemental nib portion being operable to engage a writing surface intermediate the nib portions of said inscribing elements upon a predetermined spacing of said last mentioned nib portions by said variable spacing means.

5. A writing instrument comprising a body portion; a pair of inscribing elements mounted side by side at one end of said body portion; each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface; variable spacing means operable to spread apart said nib portions; said variable spacing means having a wedging portion carried by said body portion and movable under writing pressure

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relative to said inscribing elements, said wedging portion being spaced intermediate said inscribing elements and engaging inwardly disposed faces of said inscribing elements to spread said nib portions laterally from each other upon advancing said wedging portion between said inscribing elements, and confining means carried by said body portion engaging outwardly disposed faces of said inscribing elements and adapted to bring together said nib portions upon withdrawing said wedging portion from said inscribing elements; and a supplemental nib portion carried by said body portion intermediate said inscribing elements in fixed position relative to said wedging portion, said supplemental nib portion being operable to engage the writing surface intermediate the nib portions of said inscribing elements upon a predetermined spacing of said last mentioned nib portions by said variable spacing means.

6. A writing instrument comprising a body portion; a pair of inscribing elements slidably mounted side by side at one end of said body portion; each of said inscribing elements having a nib portion carried at the lower end thereof for engaging a writing surface; variable spacing means secured to said body portion operable to spread apart said nib portions; said variable spacing means having a wedging portion spaced intermediate said inscribing elements slidably relative thereto, said wedging portion engaging inwardly disposed faces of said inscribing elements when to spread said nib portions laterally from each other when said wedging portion is advanced between said inscribing elements, and confining means slidably relative to said body portion engaging outwardly disposed faces of said inscribing elements and adapted to bring together said nib portions upon withdrawing said wedging portion from said inscribing elements; a supplemental nib portion carried by said body portion movable relative to said inscribing elements and operable to engage the writing surface intermediate the nib portions of said inscribing elements upon a predetermined spacing of said last mentioned nib portions by said variable spacing means; and spring means operatively interposed between said inscribing elements and said confining means urging said nib portions together.

7. A writing instrument comprising a body portion, a pair of flexible blade elements mounted side by side with their inner ends each slidably received within said body portion, each of said blade elements having a nib portion carried at the lower end thereof for engaging a writing surface, each of said blade elements having intermediate its ends an ear portion projecting upwardly and inclining outwardly from the nib portion of the blade element, and a wedging portion carried by said body portion in a fixed position relative to said body portion and spaced intermediate said ear portions, said wedging portion being slidable relative to said ear portions and engaging inwardly disposed faces of said ear portions to spread apart said nib portions by flexing apart the outer ends of said blade elements when said wedging portion is advanced inwardly between said blade elements.

8. A writing instrument comprising a body portion, a receiving chamber at one end of said body portion, a pair

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of flexible blade elements carried side by side by said body portion, each of said blade elements having at its inner end a tongue portion slidably received within said receiving chamber of said body portion, each of said blade elements having a nib portion carried at the lower end thereof for engaging a writing surface, an ear portion intermediate the ends of each of said blade portions projecting upwardly and inclining outwardly from the nib portion of the blade element, a wedging portion carried by said body portion in fixed position relative to said body portion and spaced intermediate said ear portions, said wedging portion being slidable relative to said ear portions and engaging inwardly disposed faces of said ear portions to spread apart said nib portions by flexing apart the outer ends of said blade elements when said wedging portion is advanced inwardly between said blade elements, and confining means carried by said body portion in fixed position relative to said body portion engaging outwardly disposed faces of said ear portions and adapted to bring together said nib elements upon movement of said confining means upwardly against the outer faces of said ear portions.

9. A writing instrument comprising a body portion, a receiving chamber at one end of said body portion, a pair of flexible blade elements carried side by side by said body portion, said blade elements each having at its inner end a tongue portion slidably received within said receiving chamber of said body portion, each of said blade elements having a nib portion carried at the lower end thereof for engaging a writing surface, an ear portion intermediate the ends of each of said blade portions projecting upwardly and inclining outwardly from the nib portion of the blade element, a wedging portion carried by said body portion in a fixed position relative to said body portion and spaced intermediate said ear portions, said wedging portion being slidable relative to said ear portions and engaging inwardly disposed faces of said ear portions to spread apart said nib portions by flexing apart the outer ends of said blade elements when said wedging portion is advanced inwardly between said blade elements, confining means carried by said body portion in fixed position relative to said body portion engaging outwardly disposed faces of said ear portions and adapted to bring together said nib elements upon movement of said confining means upwardly against the outer faces of said ear portions, and a supplemental nib portion carried by said body portion in fixed position relative to said body portion engaging the writing surface intermediate the nib portions of said inscribing elements upon a predetermined spacing of said last mentioned nib portions by said wedging portion.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

2,567,608	Lepkowski	Sept. 11, 1951
2,588,015	Kochendoerffer	Mar. 4, 1952

##### FOREIGN PATENTS

946,616	France	Dec. 27, 1948
268,565	Switzerland	Sept. 1, 1950