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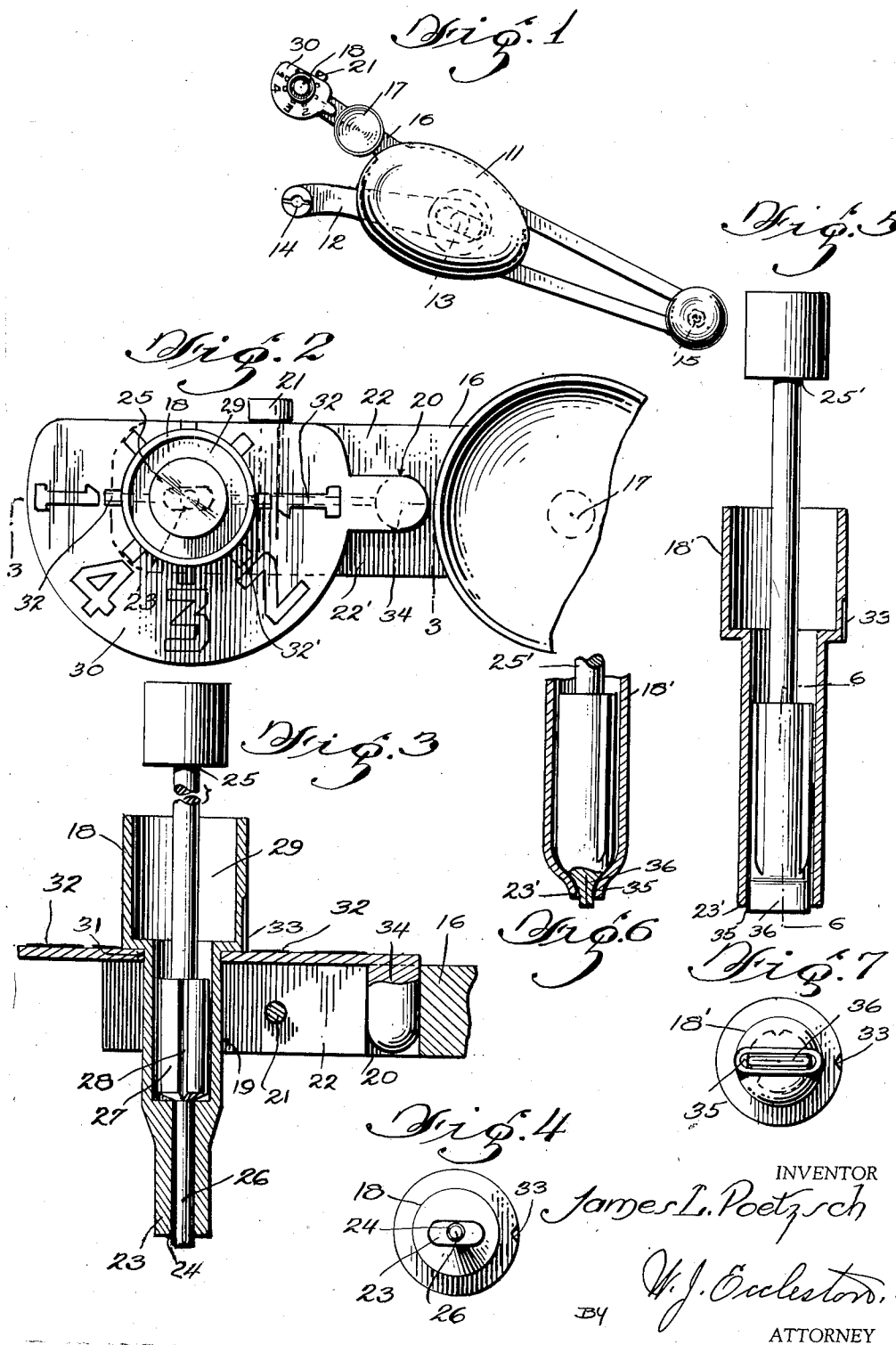
J. L. POETZSCH

2,582,275

ADJUSTABLE LETTERING PEN FOR SCRIBERS

Filed Jan. 9, 1950

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

CONVENTIONAL PEN

SCRIBER OPEN-CLOSED

THE IMPROVEMENT

NO. 1 SETTING CLOSED-OPEN

NO. 3 SETTING CLOSED-OPEN

Fig. 8

INVENTOR
James L. Poetzsch

BY *W. J. Erickson*
ATTORNEY

UNITED STATES PATENT OFFICE

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ADJUSTABLE LETTERING PEN FOR SCRIBERS

James L. Poetzsch, Baltimore, Md.

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4 Claims. (Cl. 33—18)

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The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to an adjustable lettering pen for scribes, and more particularly to a lettering pen of the character described which is adjustable to deliver strokes of predetermined width for the production of "shaded" lines.

Scribers for use with templates, to be used by draftsmen, etc., are well known and described, for instance, in U. S. Patents No. 2,011,195, Keuffel and 2,050,058, Keuffel. These scribes are provided with a tracer pen, a pivot point and a tubular lettering pen. The conventional lettering pen delivers a stroke of a width corresponding to the perimeter of its circular delivery nozzle; whenever it is desired to produce letters of varying width, another pen has to be employed. Heretofore, it has been impossible to produce "shaded" lines with the scribes and lettering pens of the foregoing type, inasmuch as it is not practical to use one pen for the "shaded" vertical stroke of a letter and a different pen for the "non-shaded" horizontal portion of the same letter.

It is therefore an object of the present invention to provide a lettering pen for use with scribes of the character described, capable of delivering "shaded" letters, wherein the horizontal and vertical strokes are of different predetermined widths.

Another object of the invention is an attachment for such a scribe which may be incorporated with the latter in lieu of the conventional lettering pen, without necessitating any structural changes or modifications in the scribe itself.

A further object of the invention is a lettering pen which is capable of selective adjustment for the delivery of "shaded" and "non-shaded" letters.

Still another object of the invention is the combination of a scribe, a lettering pen having a delivery nozzle with an elongated non-circular perimeter and a dial for indicating the yaw angle of the pen relative to the pen-carrying scribe arm.

Yet another object of the present invention is a scribe attachment which is of simple structure, inexpensive to manufacture, and adding only a nominal cost element to a conventional scribe assembly.

These and other objects of the invention will be more fully apparent from the following detailed description of the accompanying drawings which illustrate, by way of example, two embodi-

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ments of a lettering pen adapted for association with a scribe and capable of attaining the foregoing advantages.

In the drawings,

Figure 1 is a top plan view of a scribe, lettering pen and dial, in assembled relation;

Figure 2 is an enlarged top plan view of the pen-carrying scribe arm, as shown in Fig. 1, showing in detail the assembly therewith of a lettering pen and dial in accordance with my invention;

Figure 3 is a section through Fig. 2, taken along lines 3—3, showing an embodiment of my lettering pen and dial, partly in elevation and partly in section;

Figure 4 is a bottom plan view of the lettering pen of Fig. 3;

Figure 5 is a view, partly in elevation and partly in section of an alternate embodiment of my lettering pen which may be substituted for the lettering pen shown in Fig. 3;

Figure 6 is a sectional view taken along lines 6—6 on Fig. 5;

Figure 7 is a bottom plan view of the lettering pen of Fig. 5; and

Figure 8 illustrates lettering obtainable with conventional lettering pens and lettering obtainable at various settings of a lettering pen in accordance with the present invention.

More particularly, and referring first to Fig. 1 (and Figs. 2 and 3 based thereon), reference numeral 11 denotes a scribe having a first arm 12 (preferably pivoted, as at 13, for the provision of "closed" and "open" settings), a tracer pin 14 carried by arm 12, a pivot pin 15, and a pen-carrying arm 16. A screw 17 is preferably mounted on arm 16 for the purpose of spacing lettering pen 18 (about to be described in greater detail) from the paper, if desired, for the purposes more fully set forth in U. S. Patent No. 2,050,058 Keuffel. Scribe arm 16 is further provided with a first aperture 19 located near its end and normal to the longitudinal axis of the scribe arm. A second aperture 20 in scribe arm 16 is longitudinally spaced rearwardly from first aperture 19 for a purpose about to be described. Lettering pen 18 is removably seated in aperture 19 of scribe arm 16 in a horizontal position when arm 16 is vertical, and is clamped in place by set screw 21 which interconnects the bifurcated ends 22, 22' of scribe arm 16.

Referring now particularly to the preferred embodiment of my lettering pen shown in detail in Figs. 3 and 4, it will be seen that its mechanical parts are of the general construction

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shown in the above-mentioned Patents No. 2,011,195 and 2,050,058, with the principal exception of the delivery nozzle 23. The perimeter of delivery nozzle 23 is of elongated non-circular configuration. It will be at once apparent that when my pen is in the setting shown in Figs. 3 and 4, wherein the longer axis of the delivery nozzle 23 is in a horizontal position, the pen will deliver a heavy "shaded" stroke when moving downwardly, and a light "non-shaded" stroke when moving sideways. Conversely, if the setting of my pen is changed 90° in a manner about to be described, its downward stroke will be light and "non-shaded," and its sideways stroking will be heavy and "shaded." I have found that the width of the stroke is independent of the geometric configuration of the inner bore or orifice 24 which thus may be preferably rounded for ease of manufacture. Cleaning rod 25, whose tip 26 interfits with orifice 24 is of conventional construction, including its enlarged central portion 27 which is provided with grooves 28 for the passage of ink from reservoir 29 at the upper portion of pen 18.

In order to adjust the yaw angle of the pen 18 relative to scriber arm 16 for the purpose of giving a predetermined width to the stroke delivered by non-circular delivery nozzle 23, there is provided a dial 30 having a substantially central aperture 31 (for alignment with aperture 19 in scriber arm 16) and indicia 32, 32' radially arranged around aperture 31. The tubular body of lettering pen 18 is likewise provided with indicia means, such as notch 33 which registers with a setting selected from indicia 32, 32' of dial 30. While dial 30 may be made integral with scriber arm 16 by soldering or brazing, and while it is even possible to etch the indicia 32, 32' on the end portion of scriber arm 16 itself, I prefer dial 30 to be a separate part which is non-rotatably connected to scriber arm 16 by a lug 34 which radially extends from the periphery of the dial and interfits with aperture 20 in scriber arm 16; when lettering pen 18 is inserted through aperture 31 of dial 30 and through aperture 19 of scriber arm 16 and clamped in place by the tightening of set screw 21, dial 30 is likewise clamped in place.

While the operation of my device is believed to be sufficiently clear from the foregoing description of its preferred embodiment, it should be stated that by selecting an appropriate setting, e. g., setting "2" (see Fig. 2), whereby the non-circular delivery nozzle 23 of pen 18 is placed at a 45° yaw angle relative to the scriber arm 16, the lettering pen is made to deliver a stroke which has the same width regardless of whether the pen is moved vertically (down or up) or sideways. On the other hand, with setting "1," the up and down strokes of the pen are heavily shaded (while the sideways strokes are light), while in setting "3," the sideways strokes are shaded and the up and down strokes are light. The appearance of the strokes may be further varied by adjusting the "closed" and "opened" settings of the scriber by regulating the angle of arm 12 in a conventional manner; thus, in the "closed" setting of the scriber shown in Fig. 1, the letters are upright while in an "open" setting (wherein arm 12 is swung further outwardly), are slanted. However, regardless of whether the scriber is set in the "open" or "closed" position, the relative lightness and heaviness of the vertical and horizontal pen strokes is determined by the predetermined set-

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ting of the yaw angle through registering the indicia on the pen with the desired indicia on the dial. All this is clearly shown in Fig. 8.

In a modified form of my lettering pen, shown in Figs. 5 to 7, the body of lettering pen 18' likewise terminates in a delivery nozzle 23' of elongated non-circular perimeter. However, the bore or orifice 35 of the delivery nozzle is of elongated non-circular configuration and thus differs from the rounded bore 24 of the pen shown in Figs. 3 and 4. Cleaning pin 25' is provided with a non-circular elongated tip 36 which interfits with orifice 35. The form of the strokes delivered by this modified pen exactly corresponds to that of the strokes delivered by the pen shown in Figs. 3 to 5. The modified pen, although slightly more difficult to make than the preferred form, is useful for certain special applications, e. g. in small-size lettering pens where a round bore in a non-circular nozzle would be too narrow to permit free flow of ink past the tip of the cleaning pin. The setting of the modified pen is likewise accomplished by placing notch 33' in the desired position on the dial.

The term "yaw angle" as used in the specification and claims denotes the angle between the longitudinal axes of the pen-carrying scriber arm and the non-circular elongated writing surface of the delivery nozzle of my pen.

My lettering pen is capable of association not only with the Keuffel & Esser Company commercial type (as shown e. g. in the above-mentioned Keuffel Patents No. 2,011,195 and 2,050,058), but likewise with other commercial template-controlled pantographic scribes, e. g., the scribes made by Eugene Dietzgen Company, and others.

From the foregoing detailed description of my invention, it will be clear to the expert that a lettering pen in accordance with my invention may be associated with a scriber of conventional construction so as to produce "shaded" letters by adjustment of the yaw angle between the pen and pen-carrying scriber arm. Variations in size of pen and/or dial, reversals of the relative position of parts (e. g. inscribing the number of settings on the pen body in lieu of a simple notch), and other obvious modifications are deemed within the spirit of my invention and are comprised within its scope as defined by the appended claims. Thus, the foregoing description of my invention and its illustration in the appended drawings serve by way of example and not as limitation, while I desire that the scope of my invention be determined by the appended claims.

I claim:

1. Scriber attachment comprising in combination: a dial, means for non-rotatably connecting said dial to a scriber arm, said dial having a central aperture and a plurality of indicia surrounding said aperture, and a lettering pen insertable in said aperture for mounting on said scriber arm at a plurality of predetermined angles relative to said scriber arm, said pen comprising a tubular body, a delivery nozzle having an elongated non-circular perimeter, and indicia means on said body registrable with said indicia on said dial for indicating the angle of said pen relative to said arm; whereby said pen delivers vertical and horizontal strokes of predetermined widths corresponding to the predetermined angle indicated by said indicia means.

2. In a scriber: a scriber arm having an aperture normal to its longitudinal axis, indicia surrounding said aperture, and a lettering pen in-

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sertable in said aperture at a plurality of predetermined yaw angles relative to said arm, said pen comprising a tubular body, a delivery nozzle having an elongated non-circular perimeter, and indicia means on said body registrable with said indicia on said arm for indicating the yaw angle of said pen relative to said arm; whereby said pen delivers vertical and horizontal strokes of predetermined widths corresponding to the predetermined yaw angle indicated by said indicia means.

3. In a scribe: a scribe arm having an aperture normal to its longitudinal axis, an apertured dial non-rotatably connected to said scribe arm, indicia radially arranged on said dial around the aperture in said dial, and a lettering pen insertable through said dial in said aperture at a plurality of predetermined yaw angles relative to said arm, said pen comprising a tubular body, a delivery nozzle having a non-circular perimeter, and indicia means on said body registrable with said indicia on said dial for indicating the yaw angle of said pen relative to said arm; whereby said pen delivers vertical and horizontal strokes of predetermined widths corresponding to the predetermined yaw angle indicated by said indicia means.

4. In a scribe: a scribe arm having a first aperture normal to its longitudinal axis and a second aperture longitudinally spaced from said first aperture; an apertured dial, indicia radially arranged on said dial around the aperture in said dial, a lug extending from said dial into engage-

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ment with said second aperture in said arm, said lug being of sufficient length to register said apertured dial with said first aperture in said arm; and a lettering pen insertable through said dial into said first aperture at a plurality of predetermined yaw angles relative to said arm, said pen comprising a tubular body, a delivery nozzle having a non-circular perimeter, and indicia means on said body registrable with said indicia on said dial for indicating the yaw angle of said pen relative to said arm; whereby said pen delivers vertical and horizontal strokes of predetermined widths corresponding to the predetermined yaw angle indicated by said indicia means.

JAMES L. POETZSCH.

REFERENCES CITED

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

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