PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Slide Rule

I, GILBERT DESCHATRE, of Avenue President, Vargas 509, Rio de Janeiro, Brazil, a Brazilian Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a writing instrument slide rule device. More particularly, the present invention relates to a writing instrument having a slide rule arrangement wherein the overall size of the slide rule is reduced without reducing the accuracy thereof.

Conventional slide rule arrangements use logarithmic scales varying at one end from the digit 1 to the other end at the digit 10. The most common types of slide rules used are composed of slidable elongated members or of circular members which may be rotated with respect to each other. These slide rules are usually used by technicians, engineers, mathematicians, etc. The layman does not use slide rules in his ordinary calculations since the conventional models are both cumbersome and difficult to read even when they are reduced to the smallest conventional size.

The present invention provides a slide rule arrangement which substantially reduces the overall length of the elongated form of slide rule and this is suitable for incorporation on the cylindrical surface of modified forms of automatic pencils or fountain pens.

According to the invention there is provided a writing instrument slide rule device comprising, a substantially cylindrical body member for said writing instrument having a writing portion at one end thereof, an open ended cap member for said writing instrument adapted to be rotatably mounted on said body member, a first logarithmic scale having predetermined graduations arranged helically on the outer surface of said cap member near the open end thereof, a second similar scale having said predetermined graduations arranged helically on the outer surface of said body member adjacent said open end of said cap member when the latter is rotatably mounted thereon, said first and second scales being arranged on said members respectively so that the ends of each of said scales are respectively axially aligned with the corresponding ends of the other of said scales in one relative position of said cap member, and a transparent aligning member rotatably mounted on one of said members and extending across said first and second scales substantially transversely thereto for aligning desired parts of said scales.

In the preferred embodiment the scales are helical scales arranged respectively on the body member and cap member of a fountain pen.

The invention will now be described by way of example with reference to the accompanying drawings in which:—

Figure 1 is an elevational view of a fountain pen constructed with a slide rule scale arrangement in accordance with the present invention;

Figure 2 is a cross sectional view of a portion of the apparatus illustrated in Figure 1;

Figure 3 is an elevational view of a fountain pen constructed in accordance with another embodiment of the present invention; and

Figure 4 is a cross sectional view of a portion of the embodiment illustrated in Figure 3.

In the conventional form of a slide rule two logarithmic scales are arranged in displaced side by side relationship. Each of the scales is numbered with corresponding graduations proceeding from the left end digit 1 to the right end digit 10.

The scales being logarithmic have graduations between respective digits which decrease from left to right. In accordance with well known slide rule operating procedure to multiply, e.g. the numeral 2 by the numeral 2.5, the left hand index 1 of the upper scale is placed opposite the numeral 2 of the lower scale. The product 5 is then read on the lower scale opposite the numeral 2.5 of the upper scale. In accordance with the usual practice, an aligning member can be used to line up

[*Price 3s. 6d.*]

Price 4s 6d

the numeral 2 on the lower scale with the left hand index 1 of the upper scale and the numeral 2.5 on the upper scale with its product on the lower scale.

When it is desired to multiply the numeral 2, e.g. by the numeral 6.5, the numeral 6.5 on the upper scale extends beyond the right hand index 1 of the lower scale. Therefore, in accordance with the usual slide rule procedure, it would be necessary to realign the scales so that the right hand index 1 of the upper scale appeared opposite the numeral 2 of the lower scale.

It is clear that the above procedure is time-consuming. In addition it is also clear that the length of the scales must be appreciable in order to provide sufficient accuracy in reading the numerals and their product. In accordance with the present invention the length of the slide rule is appreciably reduced without decreasing any accuracy in the readings thereof by forming the scales on a pair of cylindrical members, one of which is rotatably mounted on the other.

The most conveniently used slide rule formed with elongated scales is a pocket slide rule which has a total length, of about 5 inches. The circumference of fountain pens is in the order of 17/16 inches. Therefore, it is possible to arrange the scales about the circumference of a fountain pen body member and its cap member.

Such an improved scale arrangement is shown in the embodiments of the drawings.

Referring now to Figures 1 and 2, a modified fountain pen construction is shown wherein a helical slide rule scale arrangement C is arranged on the outer surface of the cap member 81 of the fountain pen and a similar helical scale D is arranged on the body member 82 of the fountain pen which has a writing portion 83.

The cap member 81 has the helical scale C arranged about the outer surface thereof near the open end thereof. Similarly, the body member 82 of the fountain pen has the helical scale D arranged about the outer surface thereof adjacent the position of the open end of the cap member 81 when the cap member 81 is rotatably mounted on the body member 82. In the embodiment shown in Figure 1 it is clear that scales C and D are in operative relationship when the writing portion 83 of the fountain pen is covered by the cap member 81. The cap member 81 is also provided with an annular projection 84 in the other surface thereof. This annular projection 84 is used to rotatably mount a transparent aligning member 86 which has an annular groove 87 formed near one end thereof and which communicates with the annular projection 84.

The transparent aligning member 86 contains a hair line (unillustrated) which can be used to align the desired portion of the scale C with the desired portion of the scale D.

The only requirement of the helical scales as illustrated is that the ends of each helix be properly aligned, i.e. a line drawn through the index 1 at one end of the helix parallel to the axis of the body member should also pass through the digit 10 at the other end of the scale.

The various scale arrangements may be applied to the cylindrical surfaces in many different ways. For example, the scales may be engraved into the surfaces.

Referring now to Figures 3 and 4, a second fountain pen arrangement is shown wherein the C scale is arranged on the body member 91 of the fountain pen while the D scale is arranged on the cap member 92 of the fountain pen. In this arrangement, the C and D scales are placed in operative relationship when the cap 92 is placed on the body portion 91 of the fountain pen with the writing portion 93 of the fountain pen uncovered.

The body portion 91 is formed with a peripheral groove 94 in which is rotatably mounted a transparent aligning member 96. In the illustrated position the transparent aligning member 96 contains a hair line 97 which extends across all of the scale portions of the scales C and D substantially transversely thereto for aligning desired parts of the scale portions.

In the embodiments shown, it is clear that with the improved slide rule scale arrangements having the desired predetermined graduations, it is possible to obtain a compact easily usable slide rule having the same precision as a conventional slide rule having the same scale length. By providing a combination of an automatic pencil or a fountain pen with the helical slide rule scale arrangement, as illustrated, it is possible to provide a convenient slide rule arrangement which will permit laymen who ordinarily possess and use fountain pens and automatic pencils to use slide rules in their ordinary day to day calculations. That is, these same laymen may not desire to have both an automatic pencil and fountain pen in addition to a pocket slide rule.

WHAT I CLAIM IS:—

1. A writing instrument slide rule device comprising, a substantially cylindrical body member for said writing instrument having a writing portion at one end thereof, an open ended cap member of said writing instrument adapted to be rotatably mounted on said body member, a first logarithmic scale having predetermined graduations arranged helically on the outer surface of said cap member near the open end thereof, a second similar scale having said predetermined graduations arranged helically on the outer surface of said body member adjacent said open end of said cap member when the latter is rotatably mounted thereon, said first and second scales being arranged on said members respectively so that the ends of

each of said scales are respectively axially aligned with the corresponding ends of the other of said scales in one relative position of said cap member, and a transparent aligning member rotatably mounted on one of said members and extending across said first and second scales substantially transversely thereto for aligning desired parts of said scales.

2. A writing instrument slide rule device as claimed in claim 1, wherein the helical scales are marked on the body member and cap member of a fountain pen, the body member having a writing portion at one end thereof which is covered by the cap member when it is rotatably mounted thereon.

3. A writing instrument slide rule device as claimed in claim 1 or 2, wherein the transparent aligning member is rotatably mounted on the cap member.

4. A writing instrument slide rule device as claimed in claim 1 or 2, wherein the transparent aligning member is rotatably mounted on the body member.

5. A fountain pen slide rule device substantially as described and as shown in Figures 1 and 2 or Figures 3 and 4 of the accompanying drawings.

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811,673 COMPLETE SPECIFICATION
1 SHEET

FIG. 1.

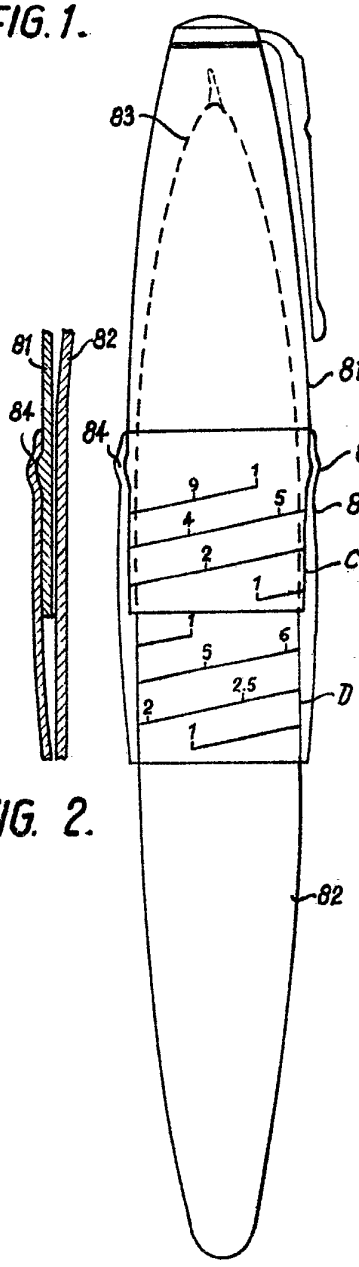

FIG. 2.

FIG. 3.

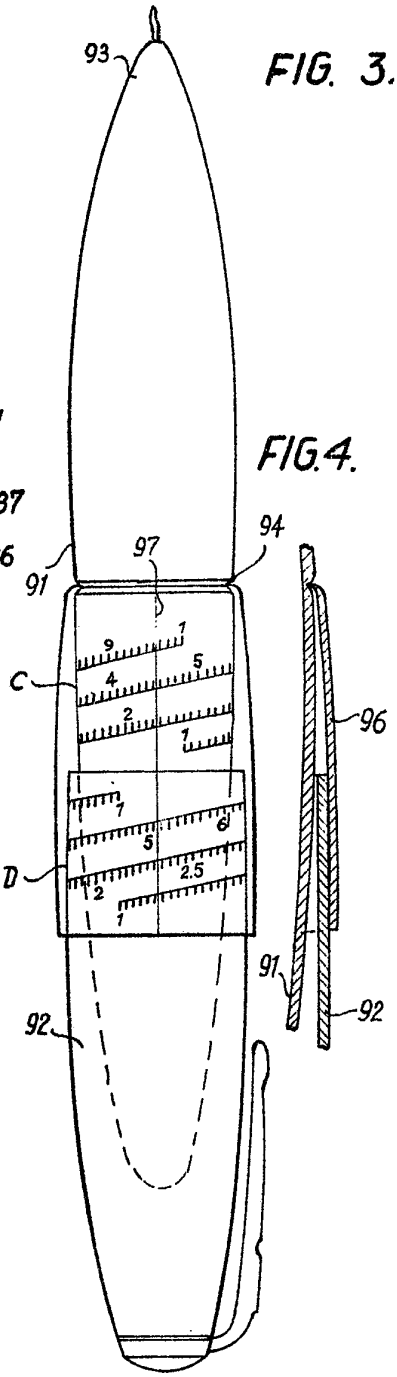

FIG. 4.