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SLIDE RULE

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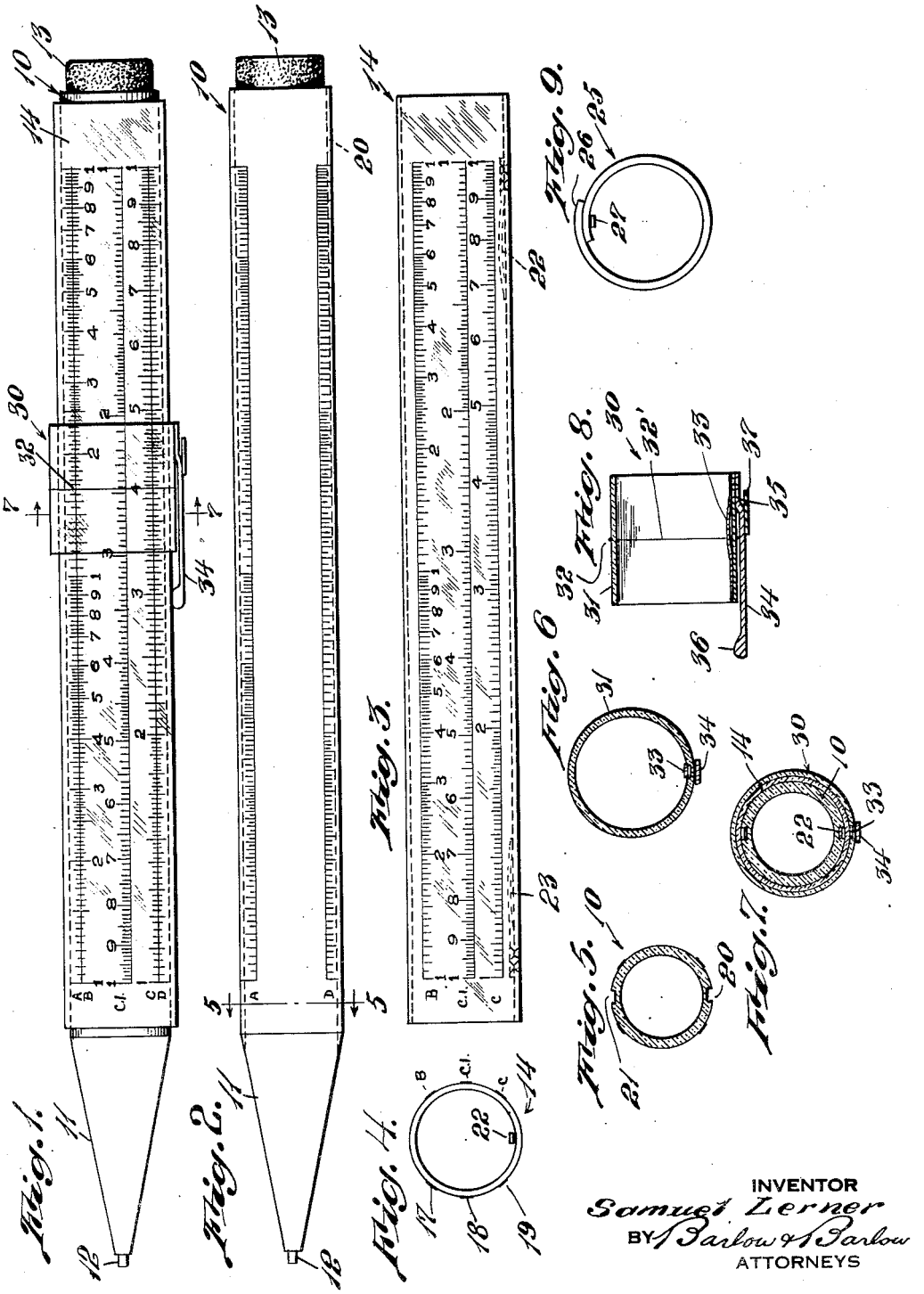

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SLIDE RULE

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1 Claim. (Cl. 235—70)

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This invention relates to a slide rule, more particularly to the physical form of the slide rule.

Slide rules are usually in the form of a flat elongated shape with scales on the opposite flat surfaces and with a slide capable of being turned over for cooperation with the scales on either flat surface.

One of the objects of this invention is to provide two telescoping members, the outer of which carries a scale and is transparent while the other cooperates therewith that the parts may be held together by reason of their nesting relation.

Another object of the invention is to make available shifting from one scale to the other by merely turning the members about their common axis, whereby all of the scales provided will be equally prominent when the device is rotated from one position to another.

Another object of this invention is to provide a compact arrangement of the parts and an arrangement so that the device may be readily held in the pocket of the user to be carried on the person.

A further object of this invention is to provide an arrangement of the parts so that the physical structure may house parts for other uses, for instance as a pencil or the like.

Another object of this invention is to provide for changing the size of the scale surface by a modification of the diameter of the cylinder rather than to change the width of a flat device as heretofore usually used.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawing:

Fig. 1 shows my rule as applied to a pencil;

Fig. 2 shows the cylindrical pencil body;

Fig. 3 is an elevation of the tubular slide which may be telescoped on the body;

Fig. 4 is an end view of the structure shown in Fig. 3;

Fig. 5 is a section on line 5—5 of Fig. 2;

Fig. 6 is a section of the slider alone;

Fig. 7 is a sectional view on line 7—7 of Fig. 1;

Fig. 8 is a longitudinal sectional view of the cursor;

Fig. 9 is an end view showing a modified form of slide.

With reference to the drawing, I have provided a cylindrical body 10 which as here shown has the form of a mechanical pencil with its shell tapered at one end 11 within which shell the mechanical pencil structure may be housed for the projection

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of a lead 12, while an eraser 13 may be provided at the opposite end of the body. Scales designated generally A and designated generally D are laid off in logarithmic values on the surface of the body 10.

A slide designated generally 14 comprises a transparent cylindrical member through which the A and D scales on the body 10 may be viewed. Its internal diameter 15 is of a size to slidingly fit the outer cylindrical surface 16 of the body 10. This member carries on its surface engraved marking designated as the B, C, and C1 scales, as shown in Fig. 3, to cooperate with the scales A and D and may carry additional scales at 17, 18, and 19 as shown in section in Fig. 4.

In order to maintain the members 10 and 14 in adjusted relation grooves 20 and 21 are provided in the body 10 for the reception of resilient leaf springs 22 and 23 located adjacent either end portion of the member 14. These springs will fit into either of the grooves 20, 21 and maintain the members in relative position against rotation so that they may be slid one on the other. If it is desired to relatively move the slide through 180° the resilient portions 22 and 23 will be transferred from the groove 20 to the groove 21.

In some cases instead of having the seamless tube 14 for one member the tube may be formed as shown at 25 in Fig. 9, of a flat sheet so as to provide overlapping portions 26 while the resilient retaining springs 27 will be provided at the overlapping portions. In some cases this part 27 may be fixed and the resiliency of the stock depended upon for holding the tubular member adjusted upon the body.

The cursor or third member designated 30, as shown in Fig. 8, consists of a transparent cylindrical member 31 having a resilient spring 33 for friction against the member 14 upon which it slidingly fits and may be moved therealong. Datum lines 32 on the outer surface and 32' on the inner surface of the member 31 are provided for convenience of the eye in determining a certain position on the scale for easy reading. A finger clip 34 is resiliently mounted as at 35 and may be swung outwardly at its knob end 36 by pressure on the piece 37. The knob end will also move along and engage the member 14 for friction therewith and may also be used as a clip for retaining the entire device in the pocket of the user when desired.

The members 10 and 14 may be relatively moved for determination of desired calculations, the slider being moved to assist in reading. The datum line 32 on the outer surface of the slider

is aligned with the datum line 32' on the inner surface thereof when reading the scales so as to avoid parallax in observation through the slider 30 and through the slide 14.

I claim:

A calculating instrument comprising a cylindrical body member, having a scale thereon, a transparent cylindrical tubular member having a bore of a size to slidingly fit said body member, telescoping thereover and having scale thereon cooperating with the scale on the body, and a cylindrical cursor member of transparent material slidably fitting said tubular member and having two datum lines one on its inner surface and the other on its outer surface, said lines being in a plane at right angles to the scales on said body and cylindrical members.

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