Sept. 10, 1946. A. H. KREILING 2,407,338

SLIDE RULE INDICATOR

Filed Aug. 17, 1944

FIG. 1

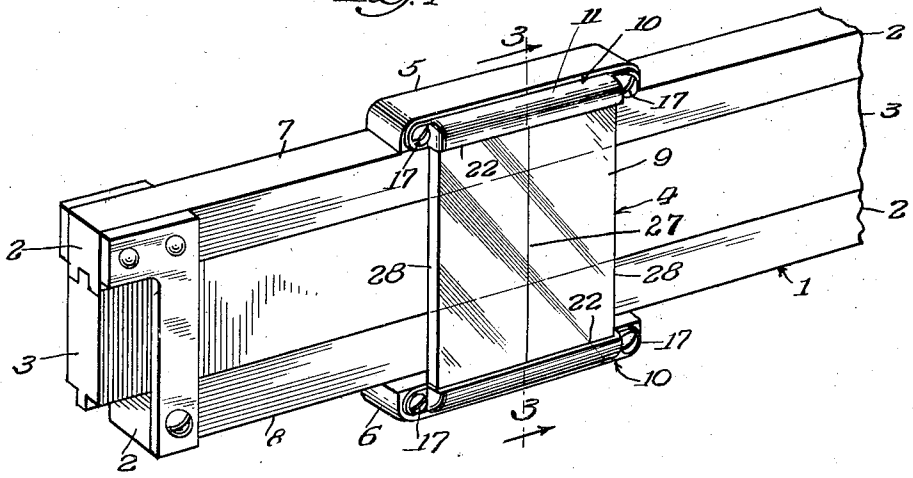


FIG. 2

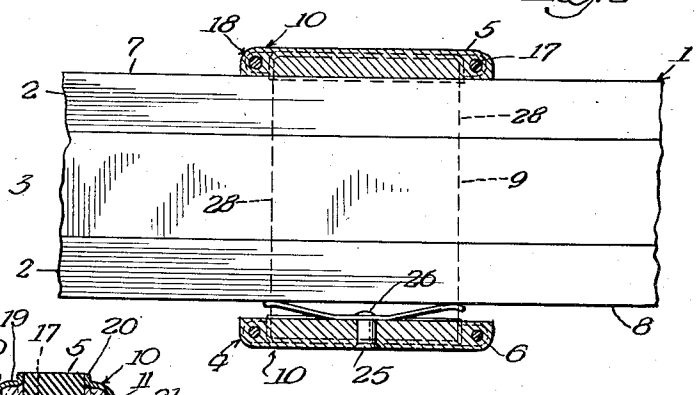


FIG. 3

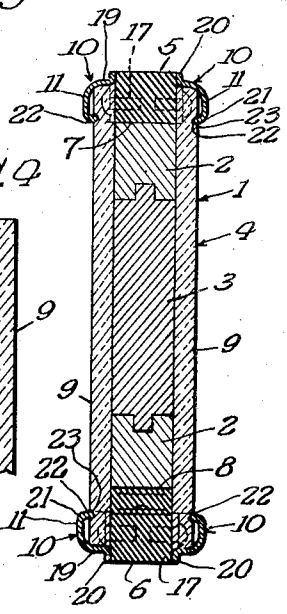


FIG. 4



FIG. 5

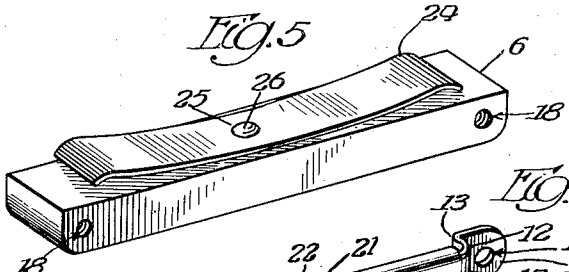
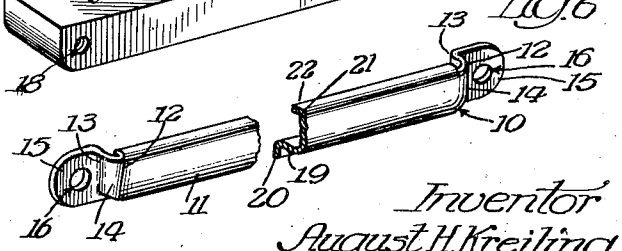


FIG. 6



Inventor
August H. Kreiling

By Spencer, Marzall, Johnston & Cook,
Attys

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SLIDE RULE INDICATOR

August H. Kreiling, Chicago, Ill., assignor to Eugene Dietzgen Co., Chicago, Ill., a corporation of Delaware

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5 Claims. (Cl. 235—70)

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This invention relates to slide rules and particularly to cursors or runners therefor.

The primary object of the present invention is the provision of a new and improved cursor which is constructed and arranged to permit full view of the graduations on the scale, which has the glass panels connected to the end bars in a manner to alleviate breakage to a great degree, which has smooth edges to overcome shadows, which has novel means for securing the glass panels in place to prevent lateral or longitudinal shifting, and which is rigid and durable in construction.

Another important object of the invention resides in the formation of a cursor which is composed of a few and simple parts capable of being manufactured easily and economically, which can be assembled quickly and easily, which can be taken apart easily for cleaning purposes, replacement, or otherwise, which is not likely to get out of order nor out of adjustment, and which eliminates the conventional metal frame but still holds the glass panels rigidly and securely without danger of breakage.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawing illustrates a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail perspective view of one form of slide rule and embodying the invention;

Fig. 2 is a longitudinal vertical sectional view through the cursor embodying the invention;

Fig. 3 is a detail sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a detail perspective view of one of the glass panels;

Fig. 5 is a detail perspective view of one of the end bars and including the attached spring; and

Fig. 6 is a detail perspective view of the securing cap or clamping member for securing the panels to the end bars.

The particular slide rule herein shown for the purpose of illustrating the invention has scales upon both faces but the invention is adaptable to other types of slide rules. The slide rule 1 has a rule 2 and a slide 3, each of which are shown without scales as the scales form no part of the present invention.

A cursor 4 co-operates with the slide rule and comprises upper and lower end bars 5 and 6 which slidably engage and reciprocate along the upper and lower edges 7 and 8, respectively, of the rule 1.

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A glass panel 9 is positioned on each side of the slide rule, Fig. 3, and each panel is secured to the upper and lower end bars 5 and 6 by means of an end cap or clamping member 10. The member 10 comprises a main body part 11 which is preferably made in one piece from sheet metal, although other suitable material may be used instead of metal. The body 11 is bent or otherwise formed at 12 and 13 to provide the end cap or closure 14 and attaching ear or leg 15 at each end, as shown in the various figures, particularly Fig. 6. Each attaching ear or leg is provided with an opening 16 to receive attaching screws 17 which threadedly engage threaded openings 18 in the end bars, Figs. 1, 2, and 3. The threaded openings 18 are shown as being formed directly in the body of the end bars, but it may be desirable to embed a bushing in the end bars and provide the bushing with a threaded opening to receive threadedly the screws 17.

The body 11 is also configurated transversely to provide a closing side wall 19 having a turned leg 20 which seats against the outer flat side of each end bar. The other side of the body is turned in as designated at 21 to provide a longitudinal clamping side or surface 22, Fig. 6, for engagement with a longitudinal V-shaped groove 23 formed in each glass panel 9 adjacent the opposite ends thereof.

Each glass panel 9 is held in proper position on a face of the slide rule by means of an end cap or clamping member 10 arranged at the upper and lower sides of the slide rule, there being two of these members 10 for each glass panel 9. The width of the end bars 5 and 6 is very slightly greater than the width of the rule 2 so that when a glass panel 9 is arranged on each face of the slide rule, it will just clear the rule and the slide. The outer ends of each glass panel are received within a member 10 with the edge 22 received in a V-shaped notch in the glass, whereupon the glass panel is locked to the runners 5 and 6 when the screws 17 are tightened. Each panel 9 is prevented from side or lateral movement because of the end closures or caps 14, and vertical movement of the panel is prevented by the engagement of the engaging edge 22 with the V-shaped groove 23. The cursor therefore is free to slide along the slide rule and is securely locked in position to the end bars 5 and 6.

Either the bar 5 or 6 may have a friction spring 24 secured thereto, the drawing showing the spring 24 being secured to the bottom end bar 6. The spring is of the conventional type and is secured to an end bar by means of a rivet 25 pass-

ing through the end bar and then peened over the spring, as indicated at **26**, Fig. 2. The head of the rivet **25** is preferably flush with the bottom edge of the bar, as clearly shown in Fig. 2.

Each glass panel **9** is provided with a hair line **27** for co-operation with the subdivisions on the scale. The panel is all glass, having smooth, straight, clear-cut edges **28** whereby the edges **28** are adaptable for the same purpose as the hair line **27**. Moreover, the straight clean edges **28** eliminate any shadows which would occur if the device was provided with the conventional metal frame, and therefore the elimination of error is greatly enhanced. The engaging or clamping edge **22** of each cap **10** is positioned so that it is slightly beyond the inner edge of the runners **5** and **6** so that no part of the scale or the graduations thereof will be covered by the cap or clamping member **10**.

The cursor embodying the invention is extremely economical to manufacture and eliminates the use of metal frames. Also, the manner in which the glass is secured is a vast improvement over drilling holes in the glass panel and securing the same to the runners by screws passing through the holes in the glass and engaging the runners. Also, the present cursor is easy to take apart for cleaning purposes and otherwise, because the mere loosening of the screws **17** will permit the panels to be easily withdrawn. The cursor is easy to assemble, is provided with straight vertical lines for reading purposes, and the view is more clear than in conventional types of cursors.

Changes may be made in the form, construction and arrangements of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A slide rule cursor having a pane of clear material, an end bar and means to secure the pane, at an end edge thereof, on the end bar comprising a clip formed for attachment on the end bar and providing a pocket for grippingly engaging the edge of the pane, said clip having portions in position to engage the opposite side edges of the pane, adjacent said end edge, to prevent displacement of the pane longitudinally of the end bar.

2. A slide rule cursor having a pane of clear material and a mounting including an end bar and means to secure the pane, at an end edge thereof, on the end bar comprising a clip formed for attachment on the end bar and providing a pocket for grippingly receiving the edge of the pane, said clip having portions in position to engage the opposite side edges of the pane, adjacent said end edge, to prevent displacement of the pane longitudinally of the end bar, and interfitting means formed on the pane and mounting to secure the pane against movement in a direction laterally of said end bar.

3. A slide rule cursor having a pane of clear material, an end bar and means to secure the pane, at an end edge thereof, on the end bar comprising a clip formed with integral spaced ears for attachment on the end bar, said clip providing a pocket for grippingly receiving the edge of the pane, said clip having portions, at said ears, in position to engage the opposite side edges of the pane, adjacent said end edge, to prevent displacement of the pane longitudinally of the end bar.

4. A slide rule cursor having a pane of clear material, an end bar and means to secure the pane, at an end edge thereof, on the end bar comprising a clip formed for attachment on the end bar and providing a pocket for grippingly receiving the edge of the pane, said clip having a portion in position to engage a face of said pane and press the opposite face thereof upon said end bar, and other portions in position to engage the opposite side edges of the pane, adjacent said end edge, to prevent displacement of the pane longitudinally of the end bar.

5. A slide rule cursor having a pane of clear material, an end bar and means to secure the pane, at an end edge thereof, on the end bar comprising a clip formed for attachment on the end bar and providing a pocket for grippingly receiving the edge of the pane, said clip having a pressor portion in position to engage a face of said pane and press the opposite face thereof upon said end bar, and other portions in position to engage the opposite side edges of the pane, adjacent said end edge, to prevent displacement of the pane longitudinally of the end bar, and interfitting means comprising a groove in said pane and an inturned lip on said pressor portion to secure the pane against movement in a direction laterally of the end bar.

AUGUST H. KREILING.