Jan. 2, 1923.

1,440,914.

C. F. DIECKMANN.

RUNNER FOR SLIDE RULES.

FILED FEB. 25, 1921.

FIG. 1

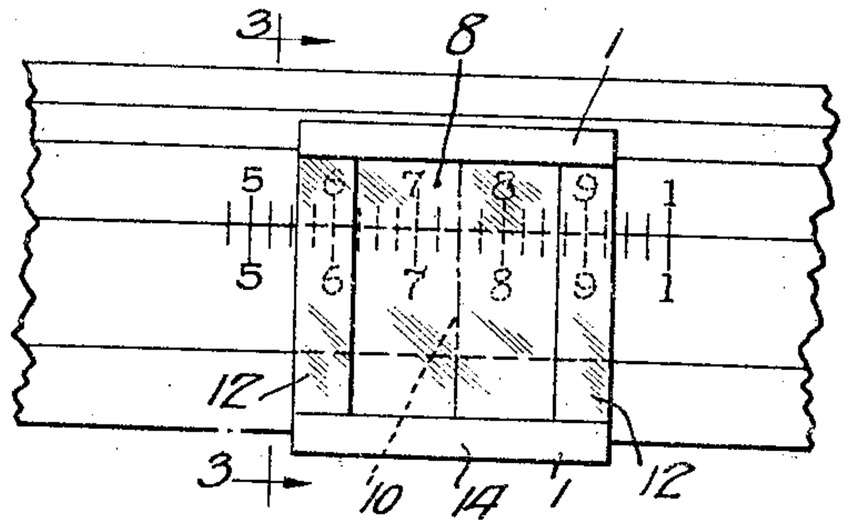


FIG. 2

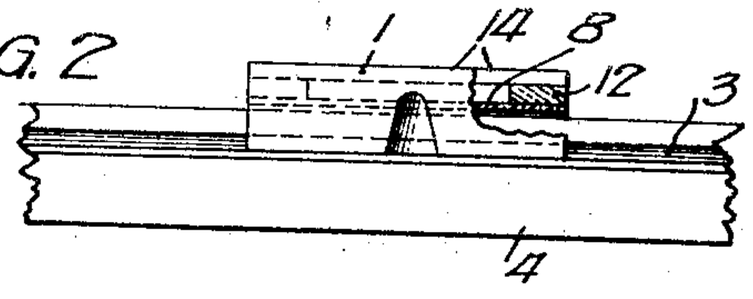


FIG. 3

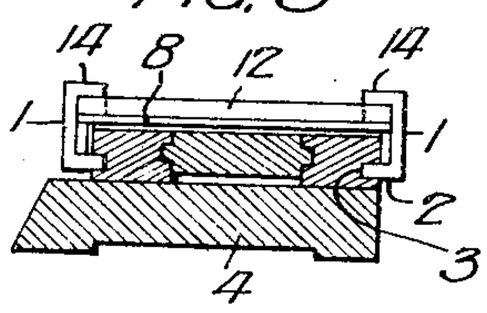


FIG. 4

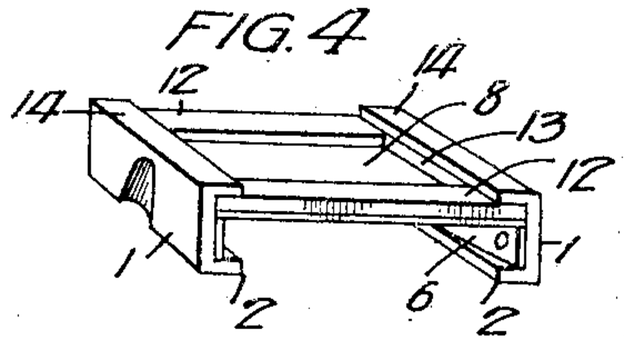


FIG. 6

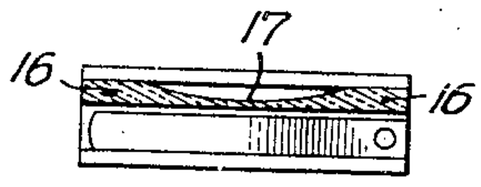
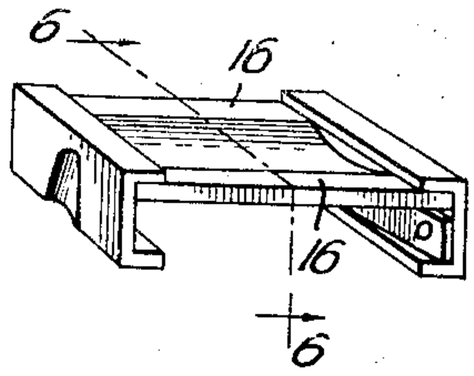


FIG. 5



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ATTYS.

Patented Jan. 2, 1923. 1,440,914

UNITED STATES PATENT OFFICE.

CARL F. DIECKMANN, OF CHICAGO, ILLINOIS, ASSIGNOR TO EUGENE DIETZGEN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

RUNNER FOR SLIDE RULES.

Application filed February 25, 1921. Serial No. 447,713.

To all whom it may concern:

Be it known that I, CARL F. DIECKMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Runners for Slide Rules, of which the following is a specification.

My invention relates to slide rules, and more particularly to the runners thereof. It is well known, of course, that the runners of slide rules have a reading line marked on the under side of a transparent body for enabling the user to read the different scales in making his computations. Glass is often employed for the purpose, but slide rules are frequently dropped or strike against surrounding objects, thus breaking the glass. It has been proposed to substitute celluloid, which is not brittle, but celluloid has two disadvantages. It is not as clear as glass and this lack of transparency makes it more difficult to make the readings accurately. A second disadvantage is that it scratches much more easily than glass and the surface soon becomes so abraded and roughened as to make the readings difficult. The object of my invention is to produce a runner which will have the advantages of glass in clearly revealing the reading line, and will at the same time possess adequate strength and avoid the brittleness of glass.

I accomplish my object by the construction shown in the accompanying drawings, in which—

Figure 1 is a top or face view of a runner embodying my invention, the same being shown in position upon a portion of a slide rule;

Figure 2 is an edge view of the parts shown in Figure 1.

Figure 3 is a sectional view on the line 3—3, Figure 1;

Figure 4 is a perspective view of the runner of the type shown in Figures 1 to 3.

Figure 5 is a perspective view of a modified form of runner embodying the invention, and

Figure 6 is a sectional view on the line 6—6, Figure 5.

Like numerals denote like parts throughout the several views.

First referring to the form shown in Figures 1 to 4 inclusive, the frame consists of two channeled side bars 1, having flanges 2 at the bottom adapted to slide in the grooves 3 in the edge of the slide rule 4. It is desirable to provide a friction spring 6 on the inside of one of the bars for retarding the sliding action of the runner and preventing the same from being accidentally displaced.

Extending across the runner from one bar to the other, is a thin sheet 8 of celluloid which has the reading line 10 marked on its under surface. The sheet is so mounted that it lies close to but out of actual contact with the upper surface of the rule. While the thickness of this sheet may be varied, it is desirable to make it quite thin; for illustration, about 15/1000 of an inch. A sheet as thin as this is virtually as transparent as glass and the thickness may be considerably increased without greatly decreasing the transparency.

Above this sheet of celluloid I mount a frame preferably of transparent or semi-transparent material such as celluloid, such frame having cross members 12 extending from one bar to the other and preferably integral with longitudinal bars 13, which, however, preferably do not project inward beyond the inner edges of the upper flanges 14 of the side bars. This frame performs two functions: First, it supplies the rigidity which the celluloid sheet lacks, thus holding the side bars 1 properly spaced and with sufficient rigidity to frictionally engage the edges of the rule. Second, as they are preferably four or five sixty-fourths of an inch thick and are only about three-fourths of an inch apart, they serve as a guard to prevent external objects from reaching the surface of the celluloid and scratching it. In other words, the cross frame rigidifies the runner and protects the thin sheet of celluloid which carries the reading line.

In the form shown in Figures 1 to 4, the frame 12, 13 is originally a separate piece from the celluloid sheet, although it may afterwards be cemented to it. In the form shown in Figures 5 and 6, the frame and sheet are integral. The margins 16 are of the full thickness of the frame—for example, four or five sixty-fourths of an inch or more, while the central portion 17 is hollowed down and thinned to such an extent that the reading line beneath may be readily apparent. A cross element con-

structed in this way of a single piece has substantially the same advantages as the type first described, and it also has the advantage of reducing the amount of time and workmanship required for manufacture.

From the foregoing it will be evident that as the central portion of the runner is thin, the reading line may be distinctly seen. The rigidity is supplied by the thicker margins, which however, are transparent to a degree making it possible to readily read the numbers marked on the scale. These numbers are larger and hence more easily read than the fine scale markings and consequently the fact that the margins of the runner are somewhat less transparent than the center does not prevent these numbers from being read. Furthermore it is only occasionally necessary to read these scale numbers whereas the reading line is used for every computation. Thus the runner is truly an open face runner and possesses the necessary rigidity in addition to the fact that the central portion, where the reading line is located, is highly transparent while the margins, although thicker, are sufficiently transparent for all practical purposes.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A runner for slide rules comprising opposed U-shape side bars adapted to respectively receive between their arms opposite edges of the slide rule, a cross member of transparent celluloid between the bars and disposed at its sides beneath the upper arms of the bars, and elements at the ends of the cross member raised above the central portion of the upper surface thereof and serving in conjunction with the upper arms of the bars to protect said surface of the member.

2. A runner for slide rules comprising side bars adapted respectively to slidably engage opposite edges of a slide rule, a cross member of transparent celluloid connecting the bars and having a transverse groove in its upper side providing a thin central portion and relatively thick end portions, the latter serving to protect the upper surface of the member within the area of said groove.

In witness whereof, I have hereunto subscribed my name.

CARL F. DIECKMANN.