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FOOTWEAR AREA CALCULATOR

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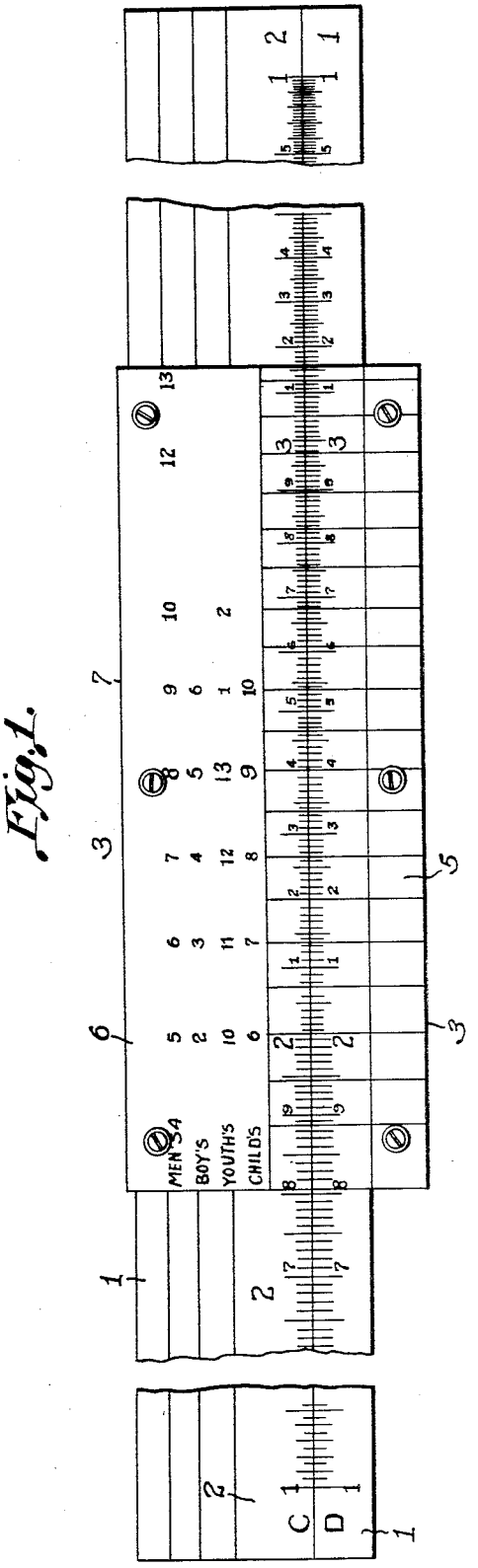

Fig. 1.

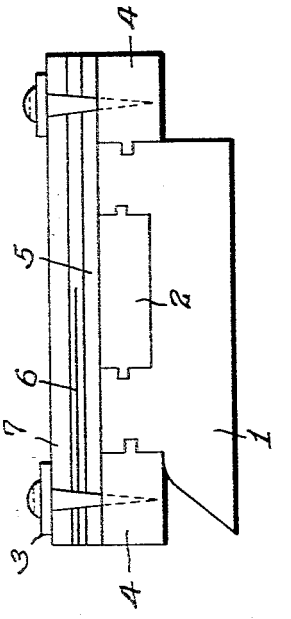

Fig. 2.

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UNITED STATES PATENT OFFICE

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FOOTWEAR AREA CALCULATOR

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This invention relates to the runner member of logarithmic slide rules adapting the same for rapid computation of foot wear sizes and quantities thereof in the handling of material or stock in the manufacture of the goods, and this improvement has for its object:

To provide a structural arrangement and combination of lines and indicia on a rule runner for the ordinary Mannheim type of slide rules, and by a manipulation of which along the body member of the slide rule, in conjunction with the regular adjustments of the graduated slide of the rule, is adapted to afford a rapid and accurate indication of the area of a size of foot wear different from a particular size selected as a standard from which to proceed, all as will hereinafter more fully appear.

In the accompanying drawing:

Fig. 1 is a front view of a slide rule of the straight bar type, with the runner of this invention thereon.

Fig. 2 is an enlarged end elevation of the same.

Like reference numerals indicate like parts in both views.

In the illustration of this invention shown in the drawing, portions of a 20 inch Mannheim slide rule, of the straight bar type, is shown as a desirable exemplification of this invention. In the straight form of slide rule shown, the rule body 1 is provided with guide grooves in its longitudinal edges to afford guiding engagement for the transparent runner 3 of this improvement as a substitute for the ordinary glass runner of a Mannheim slide rule.

In addition the rule body 1 has the usual longitudinal recess in its upper face for the reception of the slide 2, with the parts slidingly connected together by tongue and groove formation of the parts. And the upper faces of the body 1 and slide 2 are engraved with counterpart scales or graduations C and D, divided into ten greater divisions, divided in turn into ten sub-divisions as shown and as usual in logarithmic slide rules or calculators.

An essential part of this invention in connection with a slide rule of the logarithmic type involves a sliding member or runner formed as follows:—

Counterpart side rails 4, 4, are formed for tongue and groove connection with the opposite longitudinal edges of the body 1, for ready movement between the parts, with said rails connected together by a flat bridging member, preferably of the hereinafter described formation, and spanning the upper face of the slide rule in immediate superimposed relation thereto.

In the preferred formation of the sliding member or runner 3 above referred to, an under sheet or layer 5 of transparent material such as celluloid, on which are inscribed lines and markings to indicate the area of various sizes of foot wear is attached to the side rails 4, in connection with a sheet or layer 6 of paper or like material inscribed to show the different size runs of foot wear, and which in the example shown includes: Men's size 4 to 13 inclusive; boy's sizes 2 to 6 inclusive; youth's sizes 10 to 13 inclusive and 1 to 2, and child's sizes 6 to 10 inclusive, with such numerals arranged longitudinally of the runner and in transverse columnar arrangement hereinafter more fully set forth.

In the described illustration of the invention, the sizes of foot wear selected as the basis for making the required computations are, men's size 8; boy's size 5; youth's size 13; and child's size 9, with such numerals in the columnar arrangement heretofore referred to and comprising a middle column 8 and side columns 9 and 10, and as so arranged provide for calculations being made in either direction from the middle column 8, of the series of columns in ascertaining the area of material required for a desired number of pairs of foot wear. For convenience in the use of the instrument such numerals may be of a different color or size from that of the remaining numerals of the described indicia.

The numerals indicative of the selected sizes of foot wear occurring in the columnar arrangement above set forth, are primarily obtained with any of the automatic surveying instruments used in the leather art to compute the area of an irregular sheet of

foot wear material, and so that the area thereof may be marked thereon.

Woman's, misses' and little gent's sizes are not shown, in that their model sizes are the same as given, for example: Little gent's is the same as men's; woman's the same as boy's, and misses' the same as youth's.

In the preferred construction of the runner, a protecting plate 7 of glass or like transparent material is used to cover and protect the layers or sheets 5 and 6 aforesaid, with said layers and glass plate fixedly attached to the side rails 4 by screws or other suitable fastening means.

In actual use, the present runner is adapted to effect a ready showing of the aggregate area, in square feet, of any size foot wear pattern of which the area of the selected model or basic size is known, and in addition provide rapid computation of any size in any quantity.

In practical use, in which the area of material to be calculated for a number of pairs of shoe patterns, the slide 2 is moved in the rule body 1 to bring the numeral 1 of the scale C in line with the desired size column on the runner 6 and the answer will be found on the scale D of the rule body 1, in the numeral thereof which is in line with the scale C indication of the number of pairs of patterns required, as for example:—

Assuming that men's size No. 8, of the aligned numerals of men's sizes on the runner 6, is used as the starting point or basis of the present example, and is .24 square feet per pair:

The column on the runner 6 containing men's sizes No. 8, is moved into line with the numeral .24 of the scale D, and then to ascertain the area of material for three pair of men's size No. 10, slide numeral 1 on scale C in line with column containing such size.

In conditions just described and under the logarithmic principle on which the scales of a slide rule is based, the answer in the example will be found on the scale D in line with the numeral 3 of the scale C, indicative of the number of pairs required, and will read .803 as the area of material required for three pairs of men's size No. 10 foot wear.

Preferably, however, the index of the scale C being properly positioned with relation to the scale D for multiplication of the area required for one pair of standard size (men's 8, boy's 5, youth's 13 or child's 9) by the number of pairs of that size desired, the cursor is placed with the standard-size column directly over the standard-size reading, and then the area required for the same number of pairs of each of the other sizes in the same horizontal row of figures can be read directly without further movement of the cursor.

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

1. A slide rule comprising a base marked with a scale, a slide marked with a scale for direct-reading association with the scale of said base, a cursor mounted on said base and provided with a transparent portion over the said scales and an opaque portion adjacent thereto, the transparent portion being logarithmically marked with lines transverse to the said scales, including a directly transverse line representing area per standard unit of material and other directly transverse lines representing areas for variations from the standard unit, and the opaque portion being marked, opposite the said lines, with corresponding indicia of the standard unit and variations therefrom.

2. A slide rule comprising a base marked with a scale, a slide marked with a scale for direct-reading association with the scale of said base, a cursor mounted on said base and provided with a plurality of standard shoe-size numbers vertically aligned for corresponding lines of shoes and, in horizontal alignment with each of the standard shoe-size numbers, a plurality of variation shoe-size numbers of the respective line of shoes, logarithmically spaced according to the area of stock required for a determinate portion of the shoe, and directly transverse marks on the cursor accurately indicating the logarithmic positioning of the said numbers and adapted to be associated with the said scales.

3. A slide rule as defined in claim 2 in which in substance the vertically aligned standard shoe-size numbers are men's 8, boy's 5, youth's 13 and child's 9.

4. A slide rule comprising a base marked with a scale, a slide marked with a scale for direct-reading association with the scale of said base, a cursor mounted on said base and logarithmically marked with indicia representing respectively a quantity per standard unit of material and quantities for variations from the standard unit.

5. A slide rule comprising a base marked with a logarithmic scale, a slide marked with a logarithmic scale for direct-reading association with the scale of said base, a cursor mounted on said base and provided with a transparent portion over the said scales and an opaque portion adjacent thereto, the transparent portion being logarithmically marked and the opaque portion being provided with a chart having its indicia positioned with determinate relation to the marks on the transparent portion.

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