PATENT SPECIFICATION

364,298

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PROVISIONAL SPECIFICATION.

Improvements in Slide Rules.

I, HENRY OSBORNE BRIERLY, a British subject, of 36—38, Old Change London, E.C.4, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in slide rules and has for its objects to provide such an article which is more compact and easier to handle than the existing straight slide rules which are of an elongated rectangular shape. A further object is to enable calculations to be made with greater mechanical simplicity and with less mental effort.

In essence, the said invention consists in making the relatively moving parts as an assembly of concentric scales, in conjunction with which any suitable form of radially disposed cursor may be employed. The number of concentric rings is immaterial to the actual invention, and may be varied according to the number and types of calculations which it is intended the instrument shall carry out. For the same reason many kinds of scales and graduations may be applied to the co-acting edges of the relatively moving rings such for instance as scales employed for the operations of multiplication, division and extraction of square roots, as well as calculation of trigonometrical functions, and logarithms.

In an embodiment of the invention a circular or square base member has mounted thereon a main revoluble disc or subsidiary base which carries fixedly a central ring or disc and one or more concentric rings spaced apart from one another. The main disc and members carried thereby are relatively fixed. In the annular spaces so formed are fitted rotatable rings, and the joints are preferably dove-tailed or otherwise under-cut so that the movable rings are retained flush in position.

They are consequently assembled before the fixed members are secured to the revoluble subsidiary base. Thumb or nail depressions are formed on any or all of the elements to facilitate relative movement and not to impede the movement thereover of a cursor device. The latter could advantageously be pivoted to the centre of the instrument.

The various relatively moving adjacent edges are provided with the scales hereinbefore mentioned.

Dated the 10th day of December, 1930.

EDWIN C. AXE,
27, Chancery Lane, London, W.C.2,
Agent for the Applicant.

COMPLETE SPECIFICATION.

Improvements in Slide Rules.

I, HENRY OSBORNE BRIERLY, a British subject, of 36—38, Old Change, London, E.C.4, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to slide rules of the disc or plate type which are composed of flat, concentrically arranged, relatively movable scales.

Generally, in slide rules of this type, one or a series of loose, movable rings are interposed between complementary adjustable or fixed scale rings, so that the circumferential edges of the rings slidably abut. Hitherto, the rings have been mounted either upon a common base plate or the equivalent or separately upon supports of a suitable form. In one prior proposal all the rings are loosely supported upon a common base, the rings being selectively engaged by members mounted upon a radial cursor, so that several of the rings may be moved together. In many cases the rings have been provided with undercut or shaped interfitting edges.

The present invention concerns certain improvements in calculating appliances of the above type and provides a slide rule comprising a base member on which is mounted a subsidiary base disc carrying

[Price 1/-]

fixedly a plurality of concentric rings and loosely another set of rings whose circumferential edges slidably abut the edges of the first set respectively. In combination there is a radial cursor to co-operate with graduations on the various abutting edges. Also, according to the invention, the subsidiary base is fitted with a central disc and the aforesaid plurality of concentric rings are fixed to the aforesaid subsidiary base, disc and rings being provided with undercut edges, and spaced apart, whilst the loose or rotatable rings respectively lie in the spaces so formed; the said rotatable rings have edges shaped to fit snugly the said undercuts of the relatively fixed edges.

The number of concentric rings is immaterial to the actual invention, and may be varied according to the number and types of calculations which it is intended the instrument shall carry out. For the same reason many kinds of scales and graduations may be applied to the co-acting edges of the relatively moving rings such for instance as scales employed for the operations of multiplication, division and extraction of square roots, as well as calculation of trigonometrical functions, and logarithms.

An embodiment of the invention will be described in greater detail by way of example, and this is illustrated by the accompanying drawings, wherein:—

Fig. 1 is a transverse section; and

Figure 2 is a plan (the scale graduations and cursor being omitted for clearness and convenience).

In the said embodiment of the invention a circular or square base member *a*, which may be carried in a box or frame *b* has mounted thereon a main disc or subsidiary base *c* which may be revoluble and carries fixedly a central ring or disc *d* and a plurality of concentric rings *e* spaced apart from one another. The main disc and members carried thereby may be regarded as relatively fixed. In the annular spaces so formed are fitted rotatable rings *f*, and the joints are preferably dove-tailed, or otherwise under-cut as seen in Figure 1 so that the movable rings *f* are retained flush in position.

In this form, the rings *f* are assembled before the fixed members *e* are secured to the revoluble subsidiary base. Thumb or nail depressions (not shown) are formed on any or all of the elements to facilitate relative movement and not to impede the movement thereover of a cursor device. The latter could advantageously be pivoted to the centre axis *g* of the instrument, and as it may be of any suitable form, it has not been illustrated.

The various relatively moving adjacent edges are provided with the scales hereinbefore mentioned, omitted from the drawings for the sake of clearness.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

Slide rules of the type set forth, comprising a base member on which is mounted a subsidiary base disc carrying fixedly a plurality of concentric rings and loosely another set of rings whose circumferential edges slidably abut the edges of the first set respectively, together with a radial cursor to co-operate with graduations on the abutting edges, the subsidiary base being fitted with a central disc and the aforesaid plurality of concentric rings are fixed to the said subsidiary base, disc and rings being provided with undercut edges, and spaced apart, the loose or rotatable rings respectively lying in the spaces so formed, and said rotatable rings having edges shaped to fit snugly the said undercuts of the relatively fixed edges.

Dated the 4th day of September, 1931.

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FIG. 1.

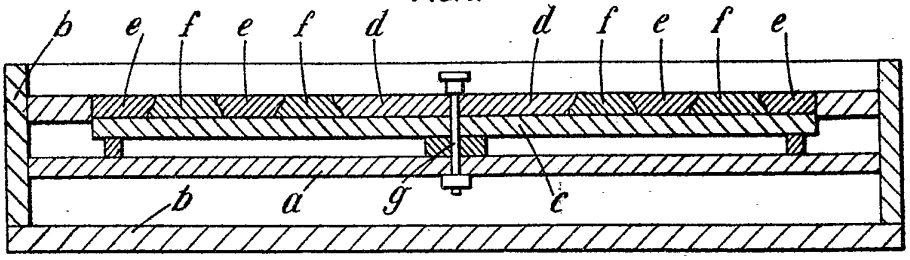
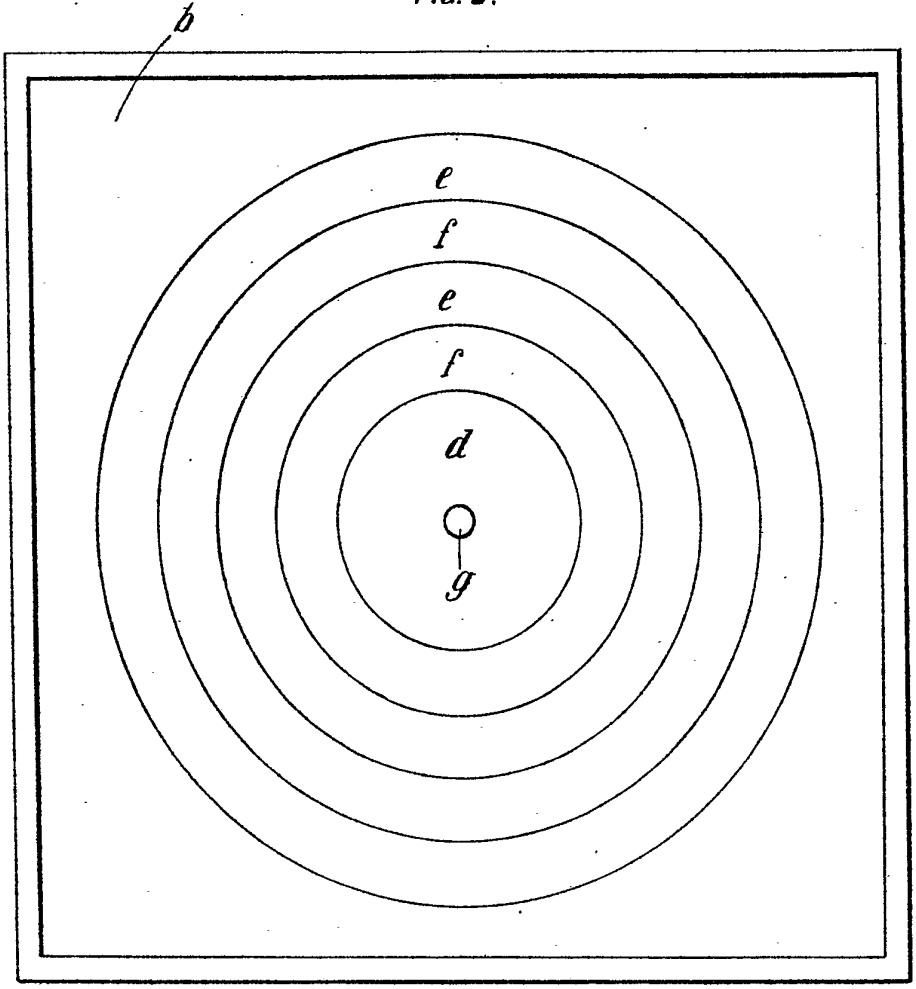


FIG. 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

Charles & Read Ltd. Photo Litho.