

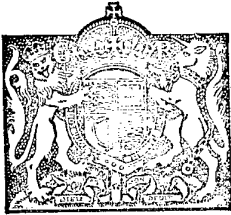
PATENT SPECIFICATION

328,455

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COMPLETE SPECIFICATION.



Improvements in or relating to Calculating Devices.

I, HARALD ODEGAARDEN, a subject of the King of Norway, of Hovenga, near Porsgrund, Norway, 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:—

The present invention relates to the circular type of calculating devices adapted to perform certain calculating steps directly, so that the result of the calculation, after the known values have been set up, may be read at once, any constants being taken into account in the construction of the device.

The invention relates more particularly to the type of calculating device in which logarithmic scales for the variables are marked on relatively rotatable discs.

In calculating devices of this type for use in connection with wireless receivers it has been proposed to secure a centre disc to a back card which does not rotate, a second disc of diameter only slightly less than the first disc being located between them, and two superposed annular rotatable rings of different diameters fitting over the second disc which serves as a bearing, scales of wave length, inductance and capacity being marked on the rotatable rings and back card.

A calculating device constructed according to the present invention comprises two discs held together in fixed relationship and spaced by a cylindrical hub member, and a plurality of discs bored centrally to fit over the hub member between the fixed discs, the diameters of the discs increasing progressively from the uppermost to the lowermost disc, and each disc bearing a logarithmic scale peripherally thereon.

The discs may be made of cardboard, celluloid, metal or any other suitable material.

The invention is illustrated by way of example in the accompanying drawings, wherein:—

Figure 1 shows a device constructed according to my invention adapted for the calculation of the volumes and freightage of boxes, and

Figure 2 is a cross-section of the device. The device comprises an upper disc 30,

a lower disc 31, and intermediate discs 32, 33 and 34 rotatable by means of the projections 35 (not shown in Figure 2).

A pin 42 passes through the centres of the discs 30 and 31, and is surrounded by a cylindrical hub member 41 which is thus secured between the discs 30 and 31, and spaces them apart. The other discs 32, 33 and 34 are bored centrally to fit upon the hub member 41 so as to be rotatable thereon.

The required logarithmic scales are marked round the edge portions of the discs. The number of discs, and therefore scales, must equal the number of variables in the formula which is the subject of the calculation. In the device as shown there is one scale each for the length, width, height, volume and freightage per cubic foot of boxes.

The dimensions of a box may, for instance, be 36 inches long, 24 inches wide and 12 inches high. In order to calculate the volume the arrow marked on the top disc 30 is set for the length opposite the number 36 on the annular disc 32. The arrow upon this annular disc 32 is set opposite the number 24 for the width on the annular disc 33. The arrow upon this annular disc 33 is finally set for the height opposite the number 12 on the annular disc 34. When such settings have been made, the arrow marked on the last mentioned disc 34 indicates the volume directly on the outer scale of the lower disc 31, viz. 6 cubic feet. Further, if the freight is, for instance, 20 Pfennig per cubic feet, this number instead of the arrow on disc 30, is set opposite the number 36 on the scale of disc 32, whereupon the freight may be read on the outer scale on disc 31.

The succession of the settings of the different values is, of course, immaterial.

Calculating devices constructed as described above may be adapted for use for all sorts of calculations, involving multiplication, division and involution. In some cases it is preferable to make the discs from transparent material, as celluloid.

If desired the uppermost discs 30 and 32 may be provided with two co-operating

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logarithmic scales similar to such scales in ordinary circular calculating slides. Additional discs and scales may be provided for trigonometrical factors.

5 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:—

10 1. Calculating device comprising two discs held together in fixed relationship and spaced by a cylindrical hub member, and a plurality of discs bored centrally to fit over the hub member between the
15 fixed discs, the diameters of the discs increasing progressively from the upper-

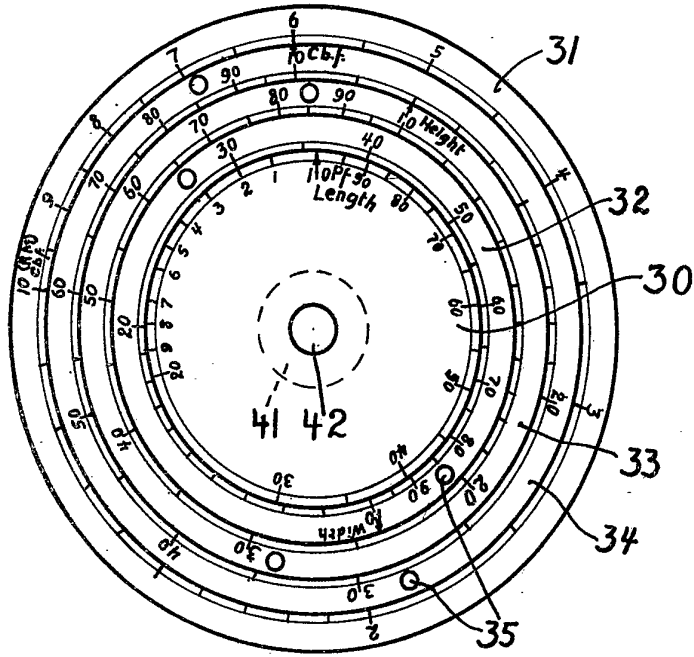
most to the lowermost disc, and each disc bearing a logarithmic scale peripherally thereon.

20 2. A device for calculating volumes and freightage substantially as herein described with reference to, and as illustrated by, the accompanying drawings.

Dated this 7th day of May, 1929.

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Fig. 1.



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

Fig. 2.

