

# PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

## Improvements in or relating to Logarithmic Calculating Apparatus.

I, HERBERT FUSS, Astronomer to the Observatory at Neubabelsberg, near Berlin, Germany, a German citizen, 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:—

In the logarithmic calculating apparatus so far known, in which finite or endless bands provided with logarithmic graduations are guided independently of each other over discs or drums, the sets of drums carrying them round lie at a considerable distance apart, so that in order to carry out the calculations a cursor must be used. The arrangement is such, furthermore, that a large part of the bands is always visible, whereby a rapid view or survey is rendered very difficult, just as with an ordinary rectilinear slide rule. Finally a calculating apparatus of this kind must have considerable dimensions, so that it can no longer be spoken of as a pocket apparatus.

Now the object of the present invention is to remove all these disadvantages and to introduce a pocket apparatus of a compact and well constructed kind which ensures an easy comprehensive view by which easy calculation results.

The calculating apparatus according to the invention is characterized by the fact that each of the bands runs over a set of drums which sets are arranged close together side by side in a case, and each of which may be either rotated independently or connected together by means of a coupling and simultaneously rotated.

The accompanying drawings show two constructional examples of the subject matter of the invention, and in which:—

Figure 1 is a diagrammatic lateral elevation of a calculating apparatus.

Figure 2 is a plan of the drums.

Figure 3 is a lateral elevation of a modified apparatus with endless bands, and

Figure 4 shows Figure 3 viewed from below.

The ends of the bands 9 of the calculating apparatus shown in Figures 1, 2 are fastened to two drums 1, 2 and 3, 4 respectively, and between these drums there are located small guiding rollers 5 and 6 and also driving drums 7 and 8 provided with pins, said pins co-operating with holes in the bands 9. Upon turning the drums 1, 2 or 3, 4 or else 7, 8 the bands 9 can be moved in opposite directions, in suchwise that a certain graduated section of the one band can be moved opposite any desired graduation section of another band, with a view to making the calculation desired.

In the modification shown in Figures 3 and 4 the endless bands 9 run over drums 10 and 11, also guiding drums 12, 13, 14, 15 and 16, 17, 18, 19 arranged between drums 12—15. For each of the bands 9 use is made of one set of driving drums and guiding drums. By turning the driving drums 10 and 11 each endless band 9 can be displaced independently of the other, in such a manner that a section of the one band provided with graduations can be made to take up a required position opposite a section of the other band also provided with graduations.

In both constructional examples shown a coupling device is provided at a suitable point, for example at the drums provided with pins or at the guiding drums, which coupling when actuated causes both bands to be displaced together which is frequently necessary when making calculations.

The several drums may, in both the examples shown be located in a casing

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Price 3/6 6d

- 20 which, by the provision of a small inspection hole provided with index lines, only allows a small part of the bands to be seen at any time.
- 5 Suitable handles, extending if necessary through the casing 20, serve for a better and easier rotation of the drums.
- 10 Owing to the arrangement of the several drums close side by side very long bands may be used with small sized cases, so that the graduation may be made with much greater accuracy than is possible with other kinds of logarithmic calculating apparatus.
- 15 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:—
- 20 1. A logarithmic calculating apparatus, in which finite or endless bands provided with logarithmic graduations are guided independently of each other over discs or drums, characterised by the fact that each of the bands moves over a set of 25 drums which sets are arranged close together in a casing, and may be rotated separately or may be connected by a coupling and rotated in unison.
2. A logarithmic calculating apparatus 30 substantially as described with reference to the accompanying drawings.

Dated this 7th day of February, 1925.

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

FIG. 1.

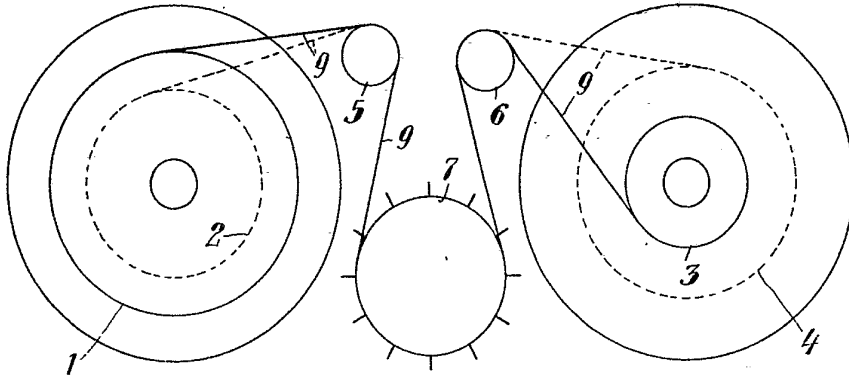


FIG. 2.

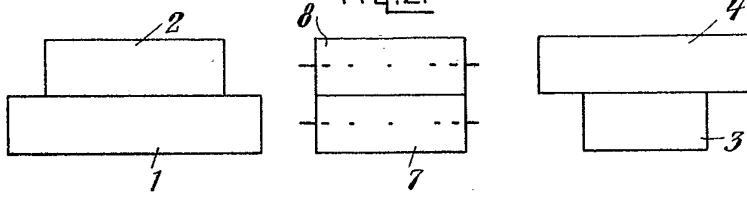


FIG. 3.

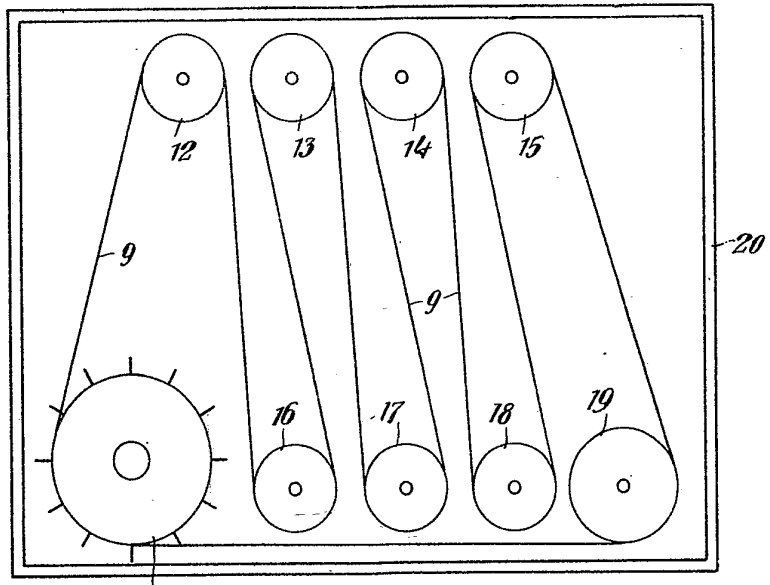


FIG. 4.

