

## FEARNS TECHNICAL CALCULATORS

Are simple-to-operate instruments, on the Circular Slide Rule principle, for the rapid and accurate solution of complete calculations in specialised fields:—

International Conversions Calculator  
Hardness Conversions Calculator  
Inches/Millimetres Conversions Calculator  
Machining Time Calculators—Lathework  
    Milling  
    Drilling  
Production Engineer's Calculator  
Ratefixer's Calculator  
Economic Batch Size Calculator  
Gear Horsepower Calculators—Spurs & Helicals  
    Bevels  
    Worm Gears  
Costing and Estimating Calculator  
Conveyor Calculator  
Horsepower Calculator  
Shaft Size Calculator  
Buyer's Calculator  
Surveyor's Calculator  
Weight Calculator for Castings & Forgings  
Weight Calculator for Plates & Sheets  
Inertia Calculator for Rotating Masses  
Tank Capacity Calculator  
Transmission Belt Drive Calculator  
Time Clerks Calculator  
Fearn's Odontograph for Gear Tooth Geometrical Construction

## FEARNS CALCULATORS

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## INSTRUCTION LEAFLET

### for the FEARNS CIRCULAR SLIDE RULE

**Special Note.** If, after being used the first few times, one or two specks of red colouring appear between the dials, they should be removed by wiping off with a smooth cloth, after dismantling. (This colouring is not the colour filling from the engraved scales, but is polishing compound used during the manufacturing process, and it should not re-appear).

The Fearn's Circular Slide Rule consists of:—a main dial, a transparent top dial, and a movable cursor to facilitate reading the scales. Calculations are performed automatically by setting the top dial in the appropriate position in relation to the main dial and reading off the answer. The cursor is of particular use for interpolating, between graduations, for three or four figure numbers.

### THE BASIC SCALE (C & D)

This is the outer red scale on the top transparent dial and its corresponding blue scale on the main dial. It is used for all normal multiplication, division, and proportion calculations and, having the widest spread, gives the greatest accuracy. The scale is calibrated from 1 to 10 and, as on all slide rules, the decimal point is ignored so that it represents at the same time:—0.1 to 1; 10 to 100; 100 to 1,000 etc.

**Multiplication.** Using these scales, set the red number 1 opposite any number on the blue scale. You have now immediately multiplied this blue number by all the numbers on the red scale, and the answers are read off, on the blue scale, opposite each red number.

Thus, if the red 1 points to 3, for example, you may read  $3 \times 2 = 6$  (opposite red 2);  $3 \times 3 = 9$  (opposite red 3);  $3 \times 4 = 12$  (opposite red 4);  $3 \times 5 = 15$  etc. (NOTE—in the two latter instances answers actually given are 1.2 and 1.5, and the decimal point position must be separately determined).

When multiplying more than two numbers together, bring the cursor into use, e.g.  $3 \times 5 \times 6$ :—Set red 1 to 3, bring cursor to red 5, then, without moving cursor, re-set red 1 under cursor line and read off answer (90) opposite red 6.

**Division** is simply the reverse of multiplication. Any number on the blue scale is automatically divided by the number on the red scale which is set against it, and the answer is read, on the blue scale, against the red 1.

e.g.  $4.5 \div 2$ , Set red 2 opposite 4.5 on blue scale and read off answer 2.25 against red 1. (At the same setting it will be seen that  $6.75 \div 3 = 2.25$ ,  $9 \div 4 = 2.25$ , etc.).

