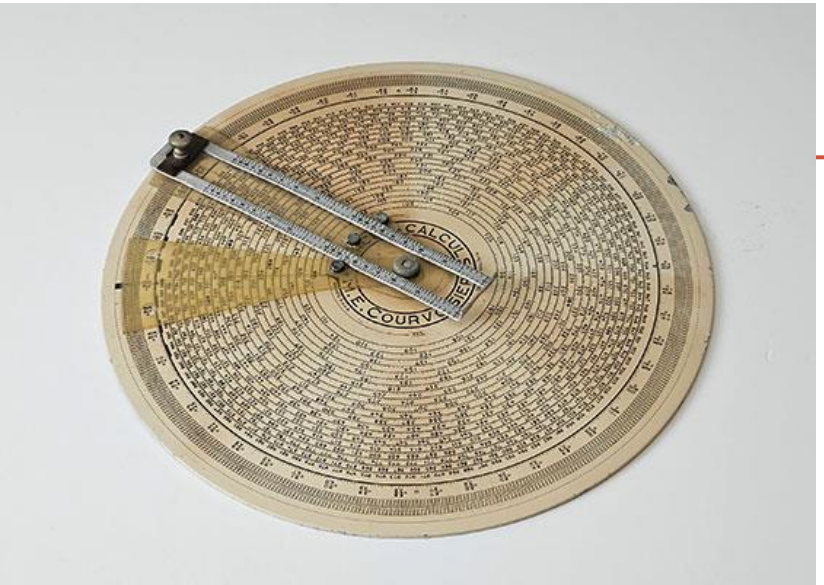
The Courvoisier spiral slide rule



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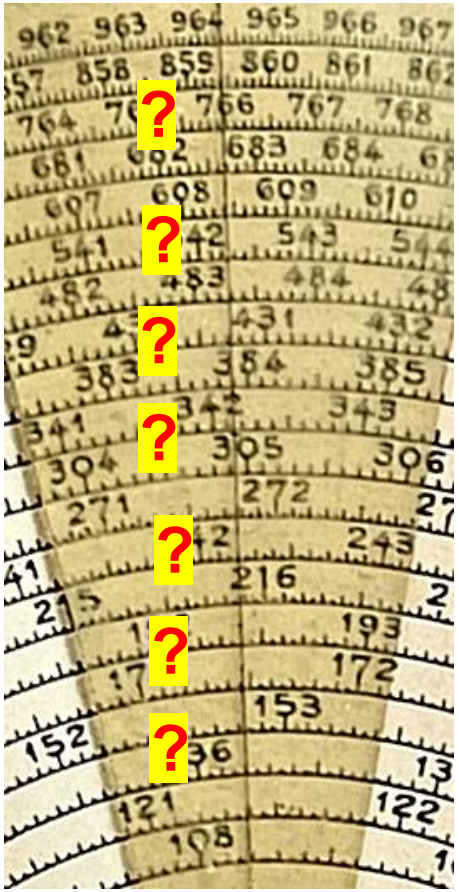
Spiral slide rules – a mixed blessing

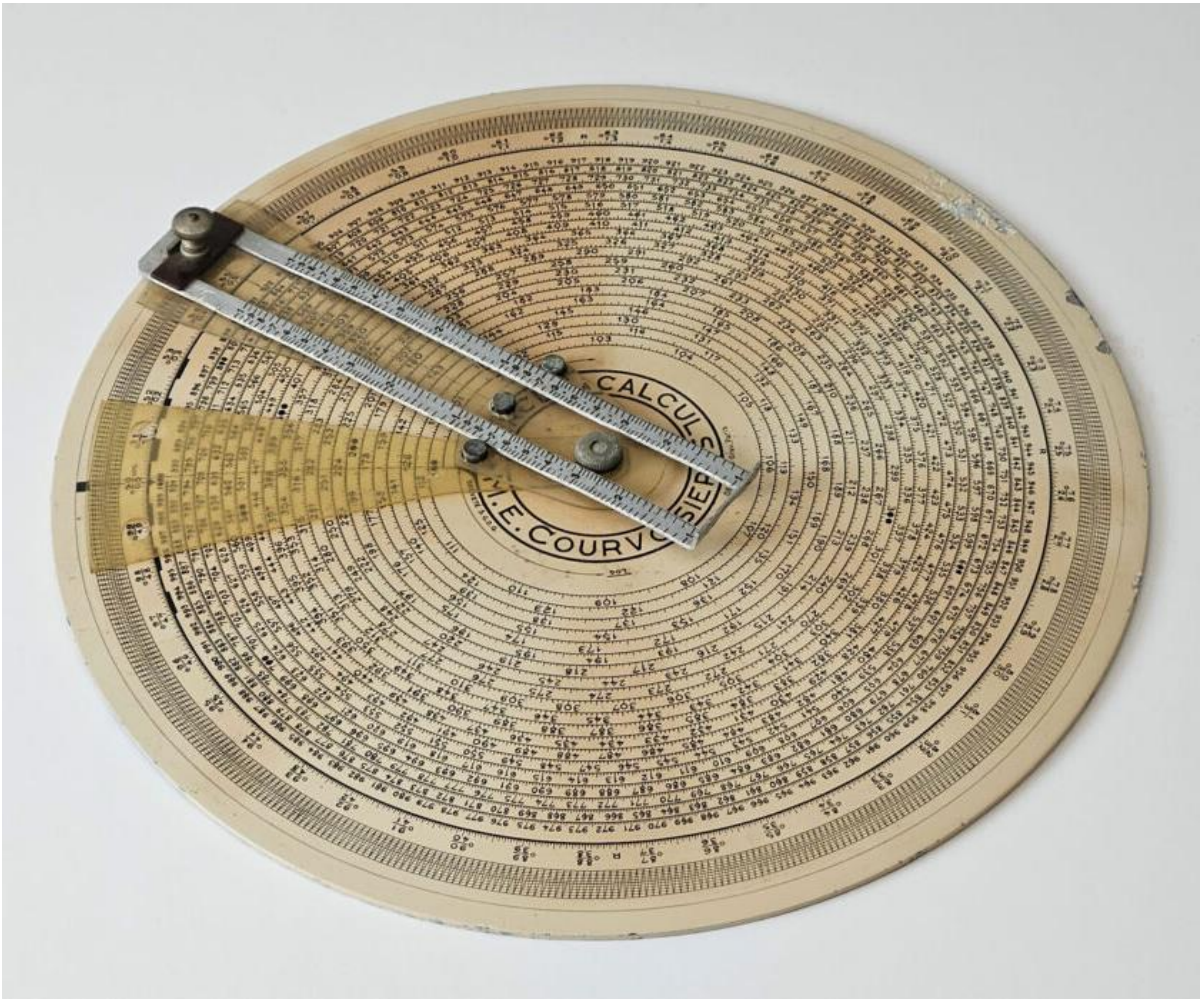
- Very long scale in a compact form factor
- How can you find the turn of the spiral that has the result?

➔ Calls for an auxiliary calculation (in one's head – or otherwise)



The Courvoisier Cercle a Calculs

- 24 cm diameter
- 20 turn spiral
- 8 meter scale
- 2 celluloid cursors
- One movable Ruler
- Enameled aluminum disc

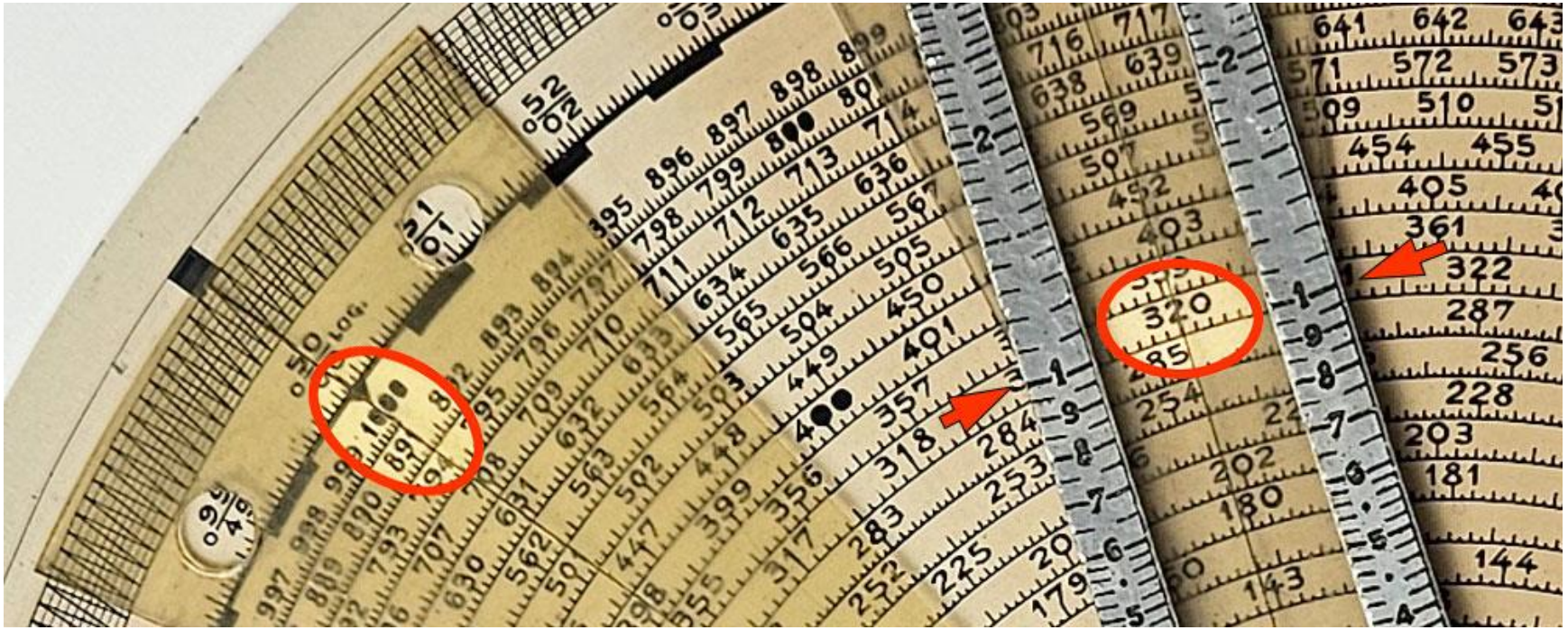


The critical piece

Calculation example

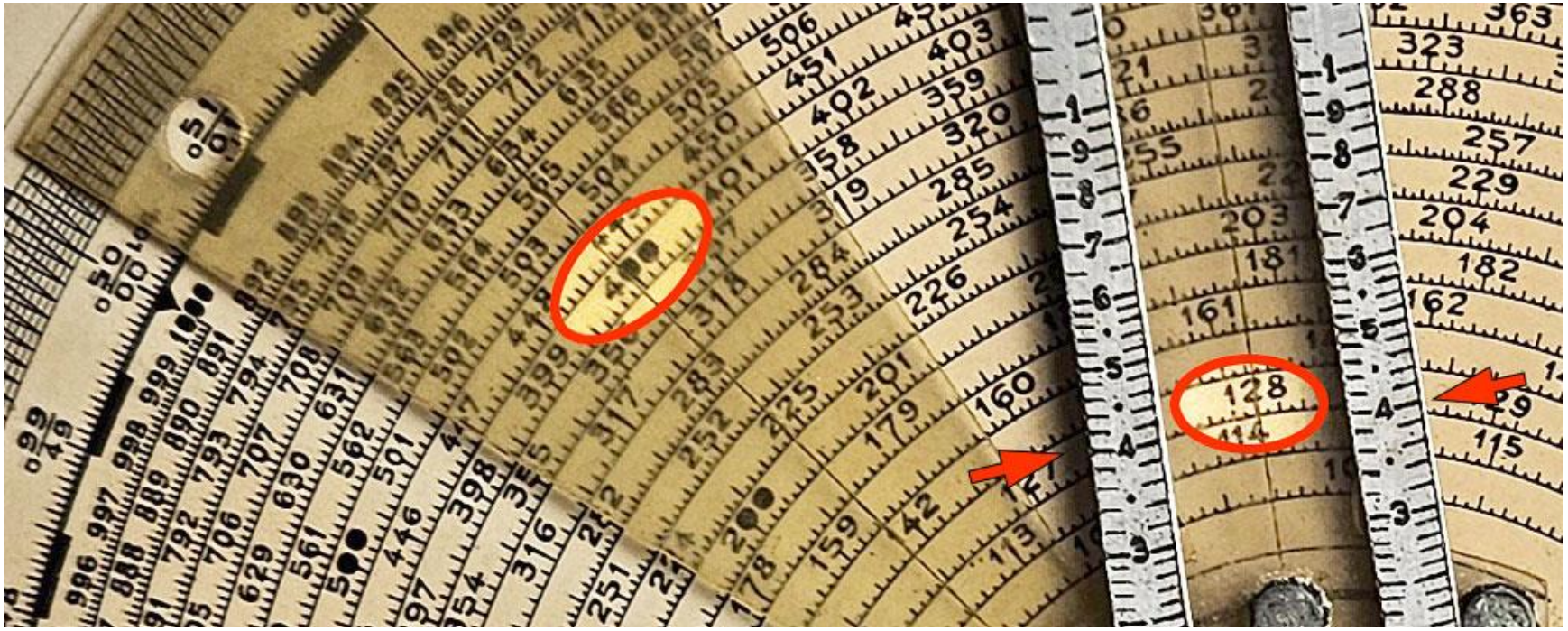
32 x 4 = ?

Step 1



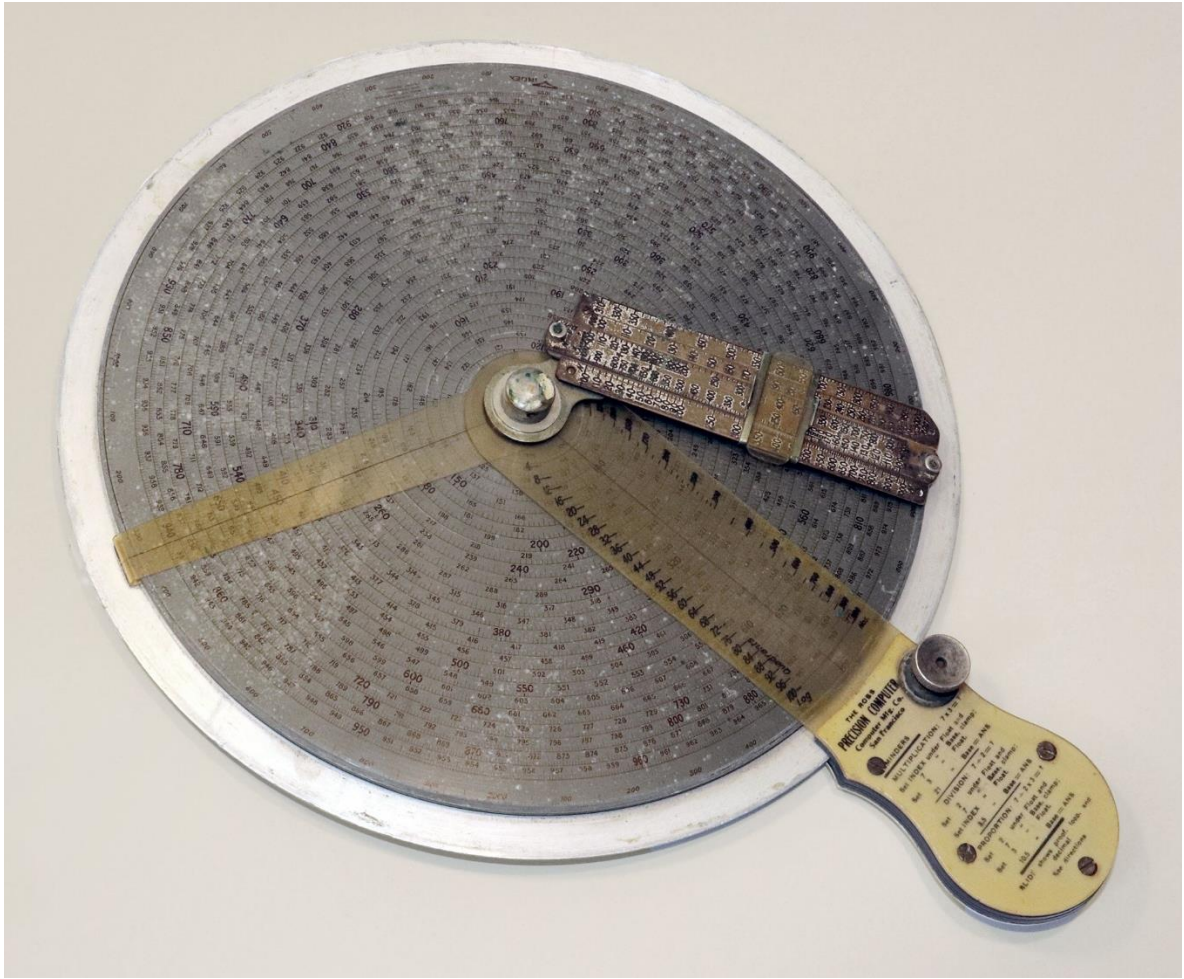
Step 2

Result: 128



The Ross Precision Computer

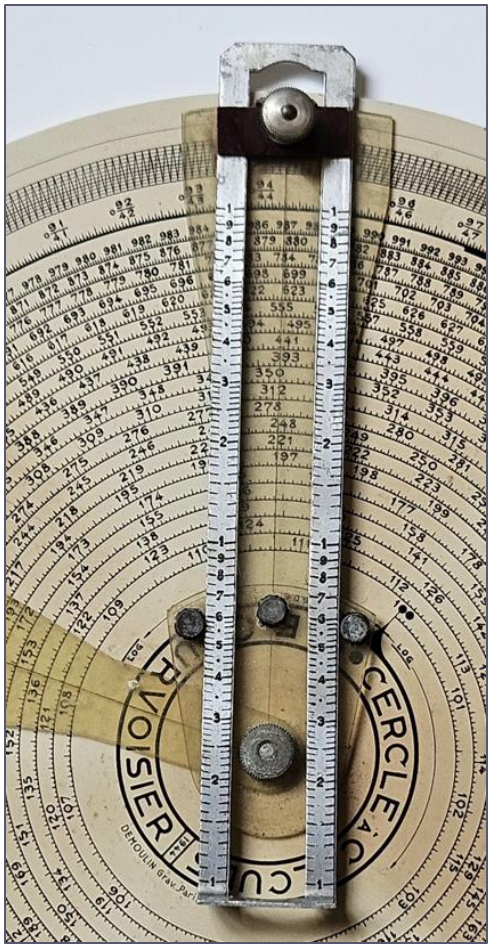
- 21 cm diameter
- 25 turn spiral
- 9 meter scale
- 2 celluloid cursors
- One auxiliary slide rule
- Terrible choice of materials…



Two approaches to the auxiliary slide rule

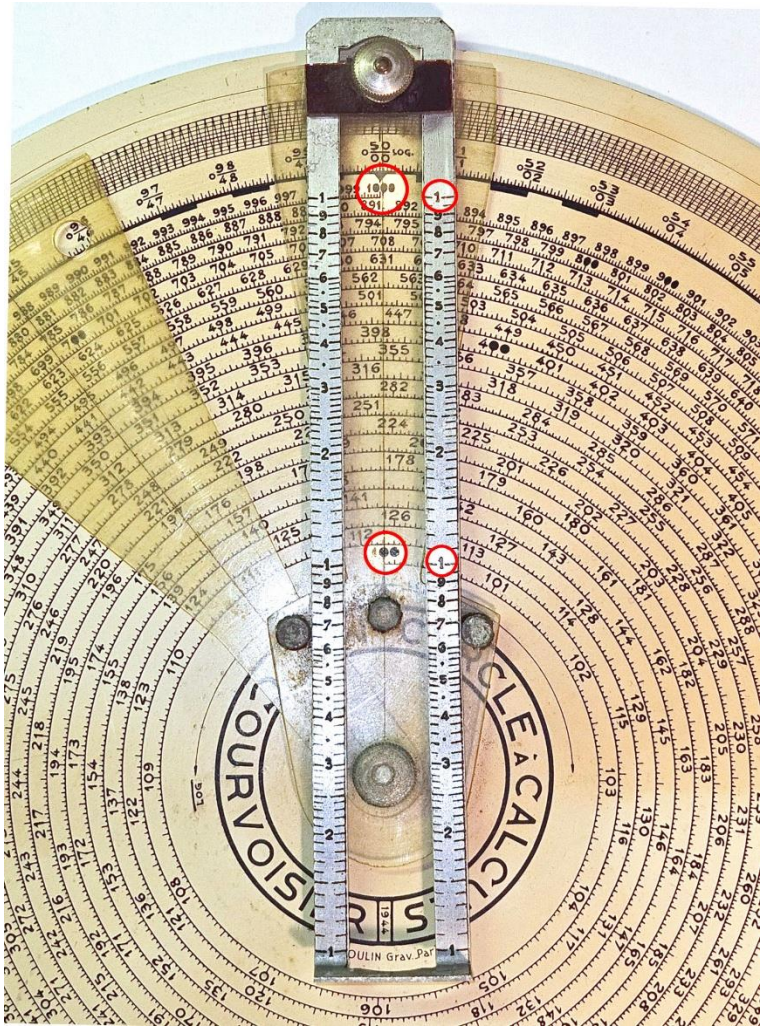
Ross

Courvoisier

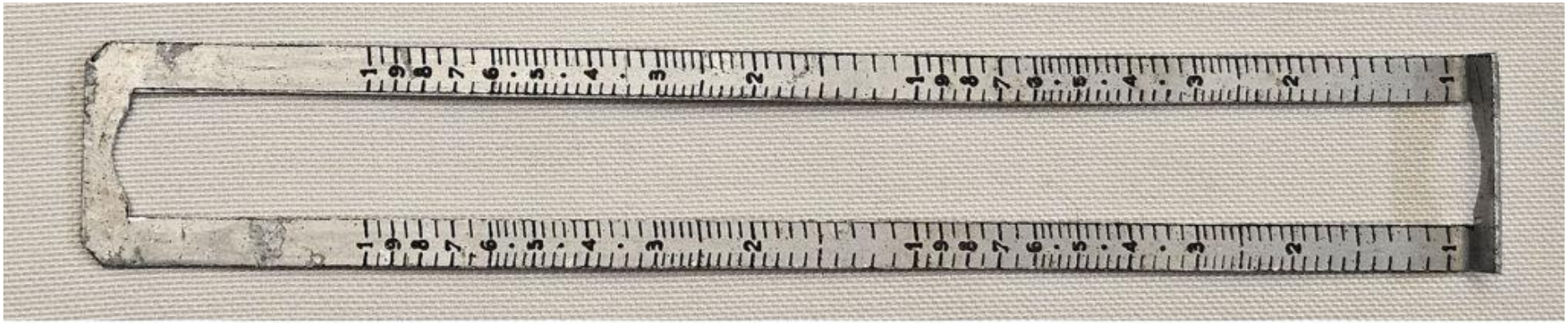


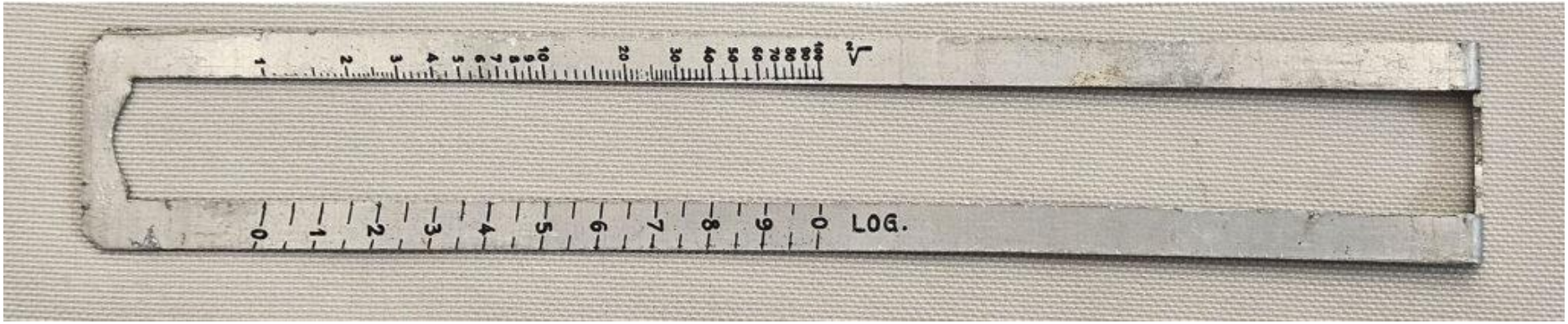
So where is the second scale!?

- The auxiliary slide rule does have two scales
- The slide is the ruler
- The stator is the spiral, which spans the same radial length
- This is a slide rule with one 6cm long, the other 800 cm long!
- And the slide is always positioned where it's needed



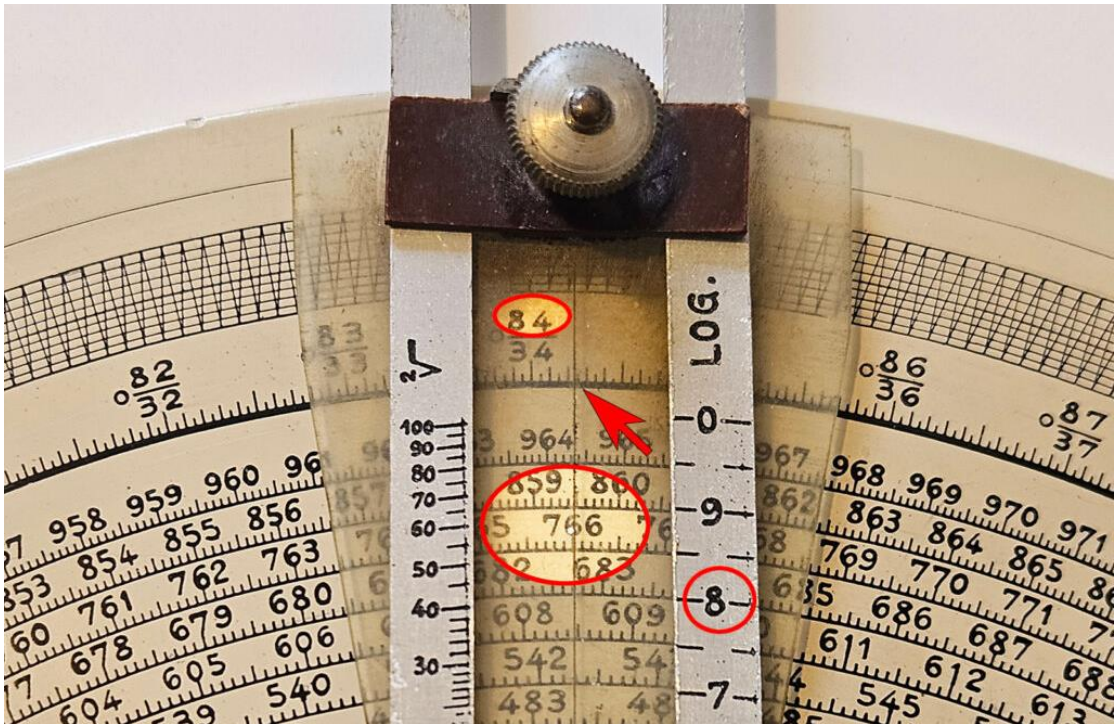
To calculate logs – reverse the ruler





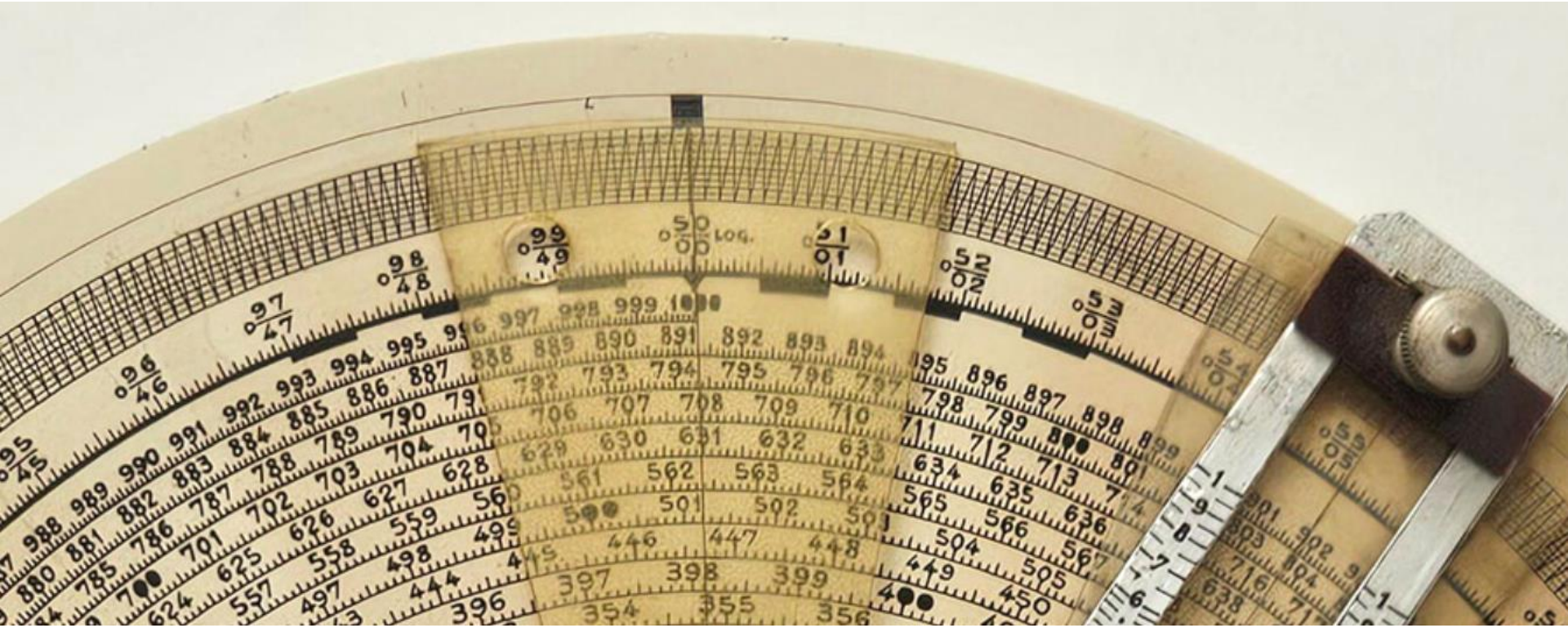
Example: find the logarithm of 766

- Fix the reversed ruler so log scale spans spiral from 100 to 1000
- Rotate its cursor so its hairline is on 766
- Read out the mantissa as follows: first digit on the ruler below the 766, which is 8
- Next 4 digits under the hairline on the LOG scale at the top, 8423
- So, Log(766) =2.88423 correct to 5 decimals!



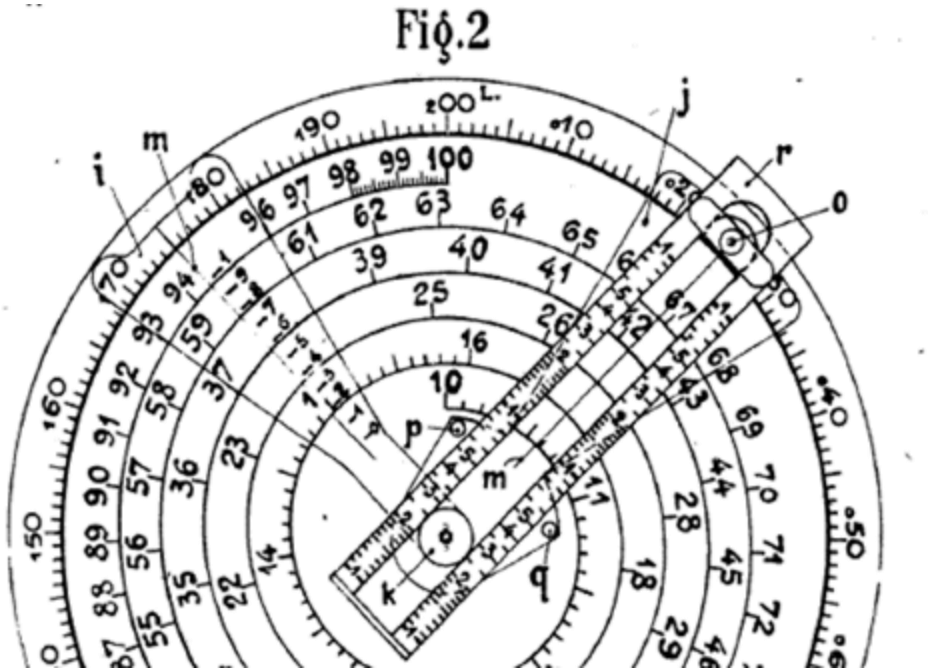
Additional features

- Navigation aids
- Interpolation scale
- Cursor collision avoidance
- Mystery holes



More information

- Invented by Maurice-Édouard Courvoisier, from Seine, France
- French patent applied for in 1944 and granted in 1946 (delayed due to German occupation)
- The patent drawing has the log line inscribed on the second cursor, which actually seems better



Thank you

For links to the instruction manual and patent see https://nzeldes.com/article/courvoisier/