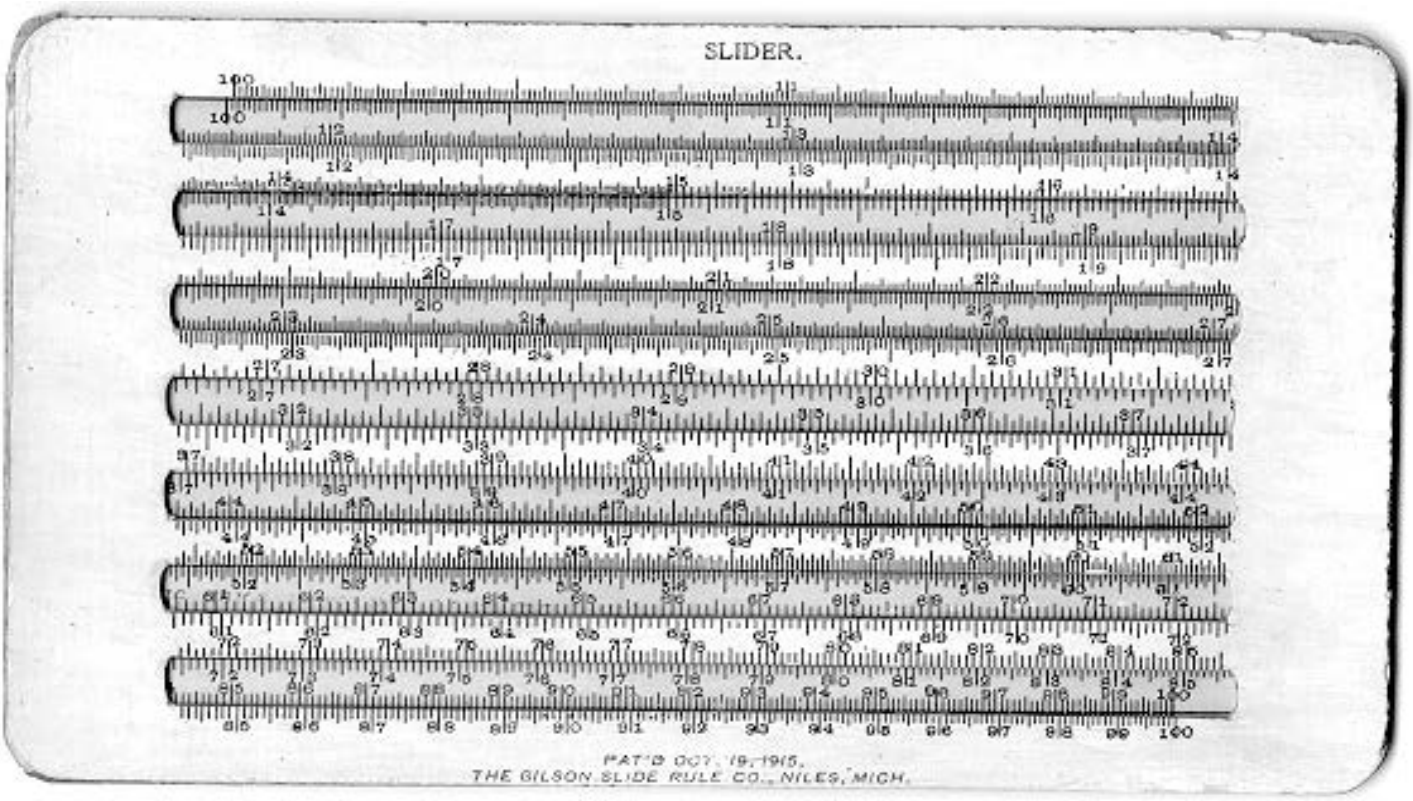
Gilson Slide Rules – Part I – The Small Rules

Henry Aldinger & Ed Chamberlain

Introduction

The Gilson Slide Rule Co. was formed by Claire Gilson in his home at Niles, Michigan in 1915, moved to Stuart, Florida in 1927, and was sold to a buyer from New Jersey in the early 1960's. Previous articles [1,2,3] in the JOS have given the history of the Gilson Company and discussed a few of the slide rules made by Gilson. It is the intent of this article to describe the various types of Gilson known to us, and to show the evolution in Gilson slide rule design. Note that Gilson slide rules were often sold by others under their own names, including Frederick Post Co., Eugene Dietzgen Co., Charles Bruning Co. A Lietz Co., Dietrich-Post Co., and Tavella Sales Co. As a result the name Gilson often does not appear on Gilson slide rules. This is the first of a two part report: part two will discuss the larger rules, such as the Atlas.



The Gilson Pocket Slide Rule

The first product probably was the cardboard slide rule pictured above. There is only one example known to us at this time. Known as the Gilson Pocket Slide Rule, this was both the first Gilson slide rule and the first Gilson patent. The patent, number 1,157,526, was granted October 19, 1915 to Clair A Gilson of Niles, Michigan. Most notable about this slide rule is that it breaks the calculating scales into 14 segments, each 5 inches long, to improve the scale length to 70-inches and the resolution of the readings to 4 or 5 digits. From a Gilson Brochure, the following description and claims are given:

> "The illustration shows two scales of the slide rule which are used in problems of multiplication, division and proportion. On the reverse side are two scales which are used for solving problems involving even and uneven roots and powers, also for finding the logarithms of numbers and the sines and tangents of angles.
>
> Each of the four scales on this slide rule is 70 inches long, and the results of computations can be read to four, and sometimes to five figures, with remarkable accuracy.
>
> ...
>
> The graduations are printed in black on a white facing, which insures ease and accuracy in reading the instrument.
>
> This Slide Rule is made of heavy water-

proof Bristol, size four by seven inches. It is washable, and can be easily cleaned.

The price of the Gilson Pocket Slide Rule and complete Instructions, mailed to any address is Fifty Cents."

Illustration of the Gilson pocket slide rule courtesy of Robert DeCesaris.

Abbreviations Employed in the Following Descriptions

A:	An A scale, that is, two log cycles, running clockwise.
Binary:	Binary scale; an A scale as above, only divided in fractions.
C:	A C scale, that is, a single log cycle, running clockwise.
CI:	An inverse C scale, running counter clockwise.
L:	A logarithim scale, evenly spaced from zero to one.
Log Log:	Log log scales; either one or two turns.
e-lines:	Embellishment lines; one or more per scale (none on tables).
Fraction:	Fraction scale, for adding fractions.
Drill:	Table for determining the size of a lettered or numbered tap drill.
Thread:	Table for determing the size of a letererd or numbered tap drill.
CFD:	Table for converting fractions to decimal.

Embellishment lines date back to the days when linear slide rules where engraved or scribed by hand. There were usually three of these horizontal lines per scale. When making the rule, they were cut first, and then used as a guide for the scriber in order to get the vertical marks to be of the proper length. For printed scales, they were more of a tradition than serving a useful function.

On the first Gilson Midget slide rules, they take the form of three circles per scale. Over time, this dropped to one per scale, and then none.

The Gilson Midget Slide Rule – Type I – Version I

The first in a series of Midget slide rules started out as 3 3/8-in. diameter plywood disk (1/4-in. thick) with scales laid out on paper surfaces. It had only C and L scales on the front and two trigonometric function scales on the reverse. The scales had traditional embellishment lines (e-lines) of hand engraved scales on earlier slid rules. There were two 'crows foot' metal indicators on the front. This slide rule is shown (and the features described) in the next figure. Note the offset in scales C and L due to the fact that the cursors are not transparent, and must per read with separate pointers.

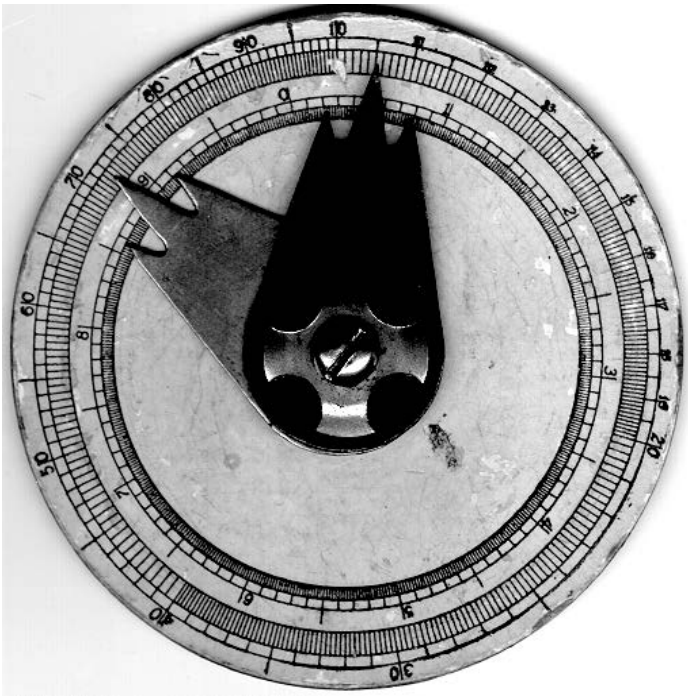
With time, the Midget slide rule evolved, both in scale format and in construction, to a 4 1/4-inch diameter celluloid enamel-faced aluminum disk with several additional scales and transparent plastic indicators. The materials used included steel disks with paper surfaces, aluminum disks with celluloid enamel surfaces, and celluloid disks. The additional scales included a two cycle A scale, the A-type Binary fraction scale, an inverse CI scale, one and two turn log log scales, a Fraction scale designed for adding fractions, Tap and Drill scales, etc.

The front of this slide rule is shown on the outside front cover, and the back on the inside front cover.

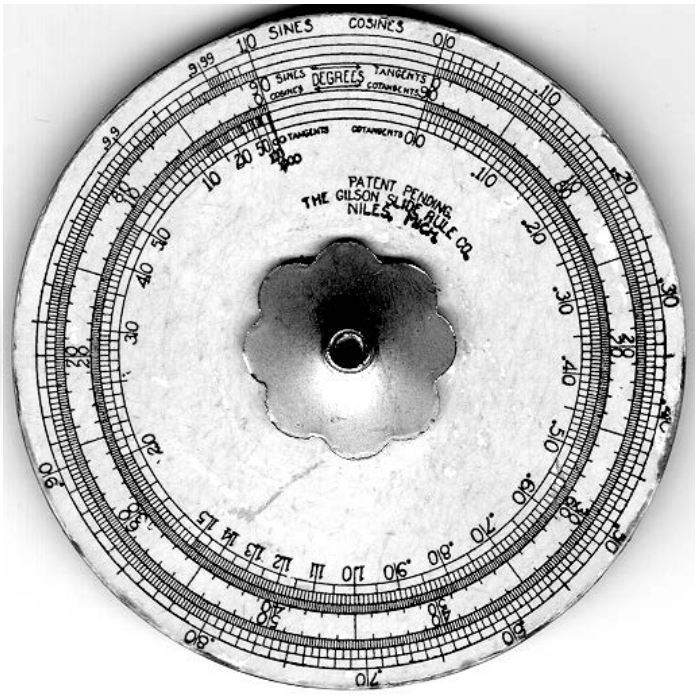
Type I, Version I Characteristics:

Materials:	Paper scales glued onto $\frac{1}{4}$ inch plywood.
Size:	$3\frac{3}{8}$ inches in diameter.
Front scales:	C and L with three e-lines per scale set.
Back scales:	Tables of trigonometric functions with four e-lines per scale set.
Cursors:	Two crow foot metal cursors on the front; none on the back.
Location:	Mentions Niles Michigan.
Patents:	States that a patent is pending, undoubtably the one granted in 1-17-22 (see rule version III, type I.).
Copyright:	None mentioned.
Date:	Circa 1915.

Gilson Midget Slide Rule – Type I – Version II



Front



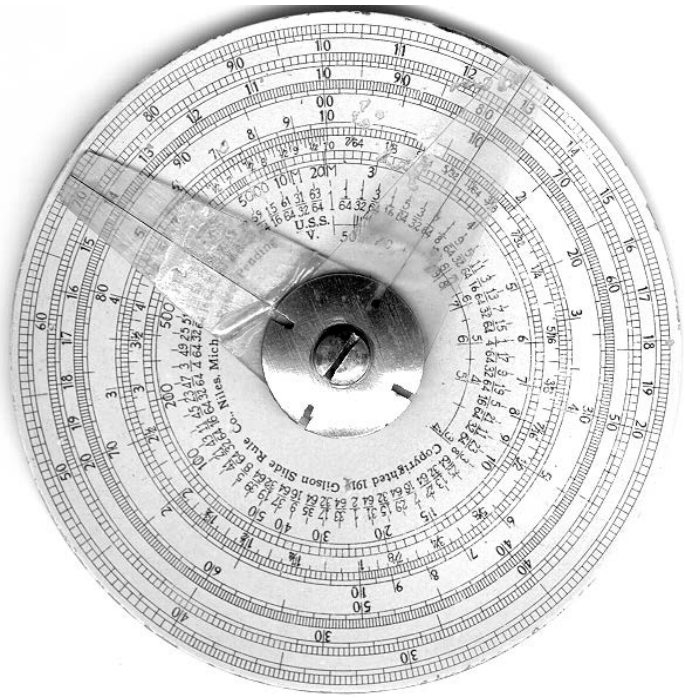
Back

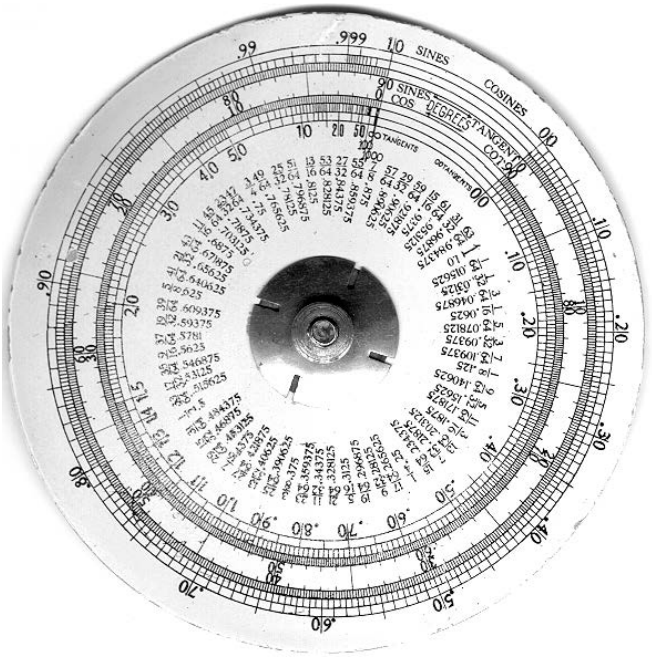
Similar to I.I (Version I, Type I), but with changes in material, diameter and the hardware for attaching the cursor parts to the rule.

Materials:	Paper scales glued onto steel.
Size:	$3\frac{5}{16}$ inches in diameter.
Front scales:	C and L with three e-lines per scale.
Back scales:	Tables of trigonometric functions with four e-lines per scale.
Cursors:	Two crow foot metal cursors on the front; none on the back.
Location:	Mentions Niles Michigan.
Patents:	States that a patent is pending.
Copyright:	None mentioned.
Date:	Estimated to be circa 1916 to 1918

Gilson Midget Slide Rule – Type II

Front



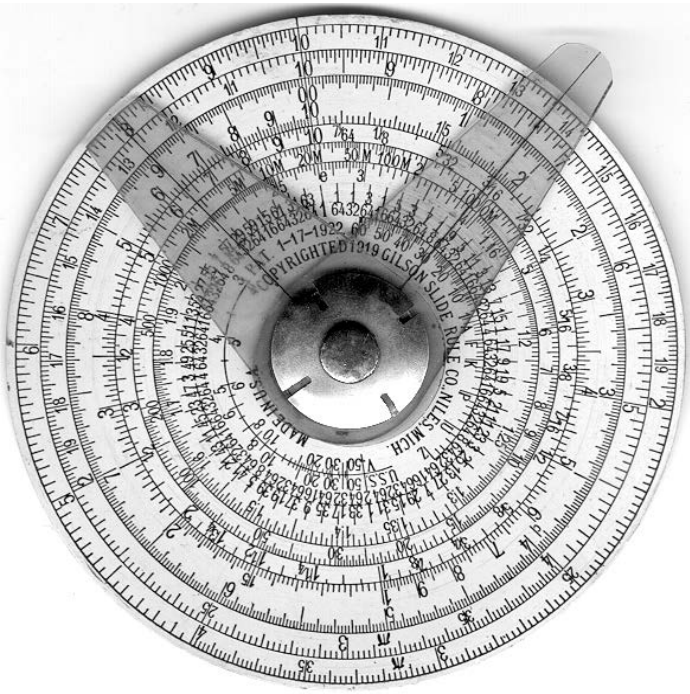


Back

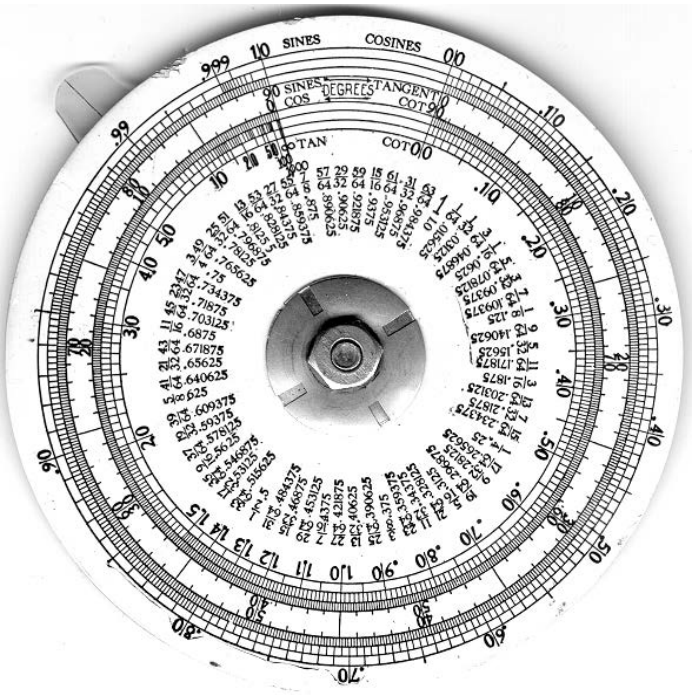
This is the midget that was so successful. Note that there are now two *celluloid* cursors on the front, but still no cursor on the back. Note also the introduction of the CI, A Binary, and Log Log scales, and Drill and Thread and CFD tables.

Materials:	Scales printed directly on white celluoloid enamel over an aluminum core.
Size:	$3\frac{3}{4}$ inches in diameter.
Front scales:	C, CI, L, A, Binary, single turn Log Log, Fraction, Drill and Thread, three e-lines per scale.
Back scales:	Tables of trigonometric functions, CFD, four e-lines per scale.
Cursors:	Now two celluloid cursors on the front; none on the back.
Location:	Still Niles Michigan.
Patents:	States that a patent is pending, undoubtably the one granted in 1-17-22.
Copyright:	Copyrighted 1919.
Date:	Early 1920's.

Gilson Midget Slide Rule – Type III – Version I



Front

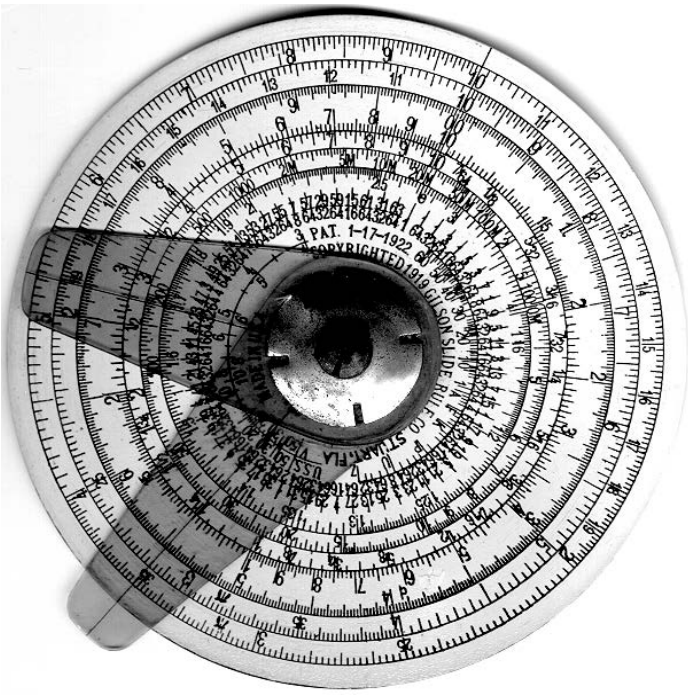


Back

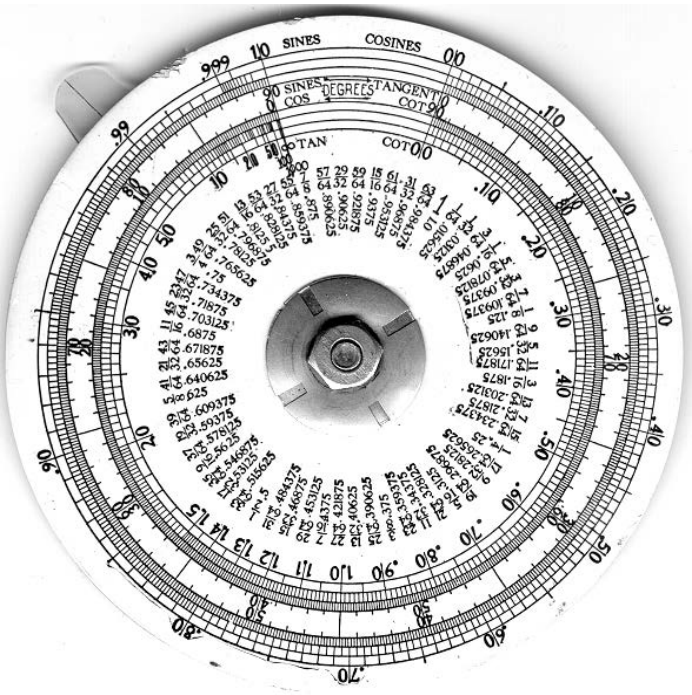
The second patent has now been granted. A two turn log log scale has been added, two of the three e-lines per scale have been removed from the front (only).

Materials:	Scales printed directly on white celluoloid enamel over an aluminum core.
Size:	$3\frac{13}{16}$ inches in diameter.
Front scales:	C, CI, Log, Binary, Log Log (two turn), Fraction, Drill and Thread. Now one e-line per scale only. Log Log is now two turns.
Back scales:	Tables of trigonometric functions and CFD; four e-lines per scale.
Cursors:	Two celluloid cursors on the front; none of the back.
Location:	GILSON SLIDE RULE CO. NILES, MICH. MADE IN U.S.A.
Patents:	Patent granted 1-17-22 (number 1,404,019). Seven claims, mainly involving the cursor.
Copyright:	Copyrighted 1919.
Date:	Mid 1920's.

Gilson Midget Slide Rule – Type III – Version II



Front

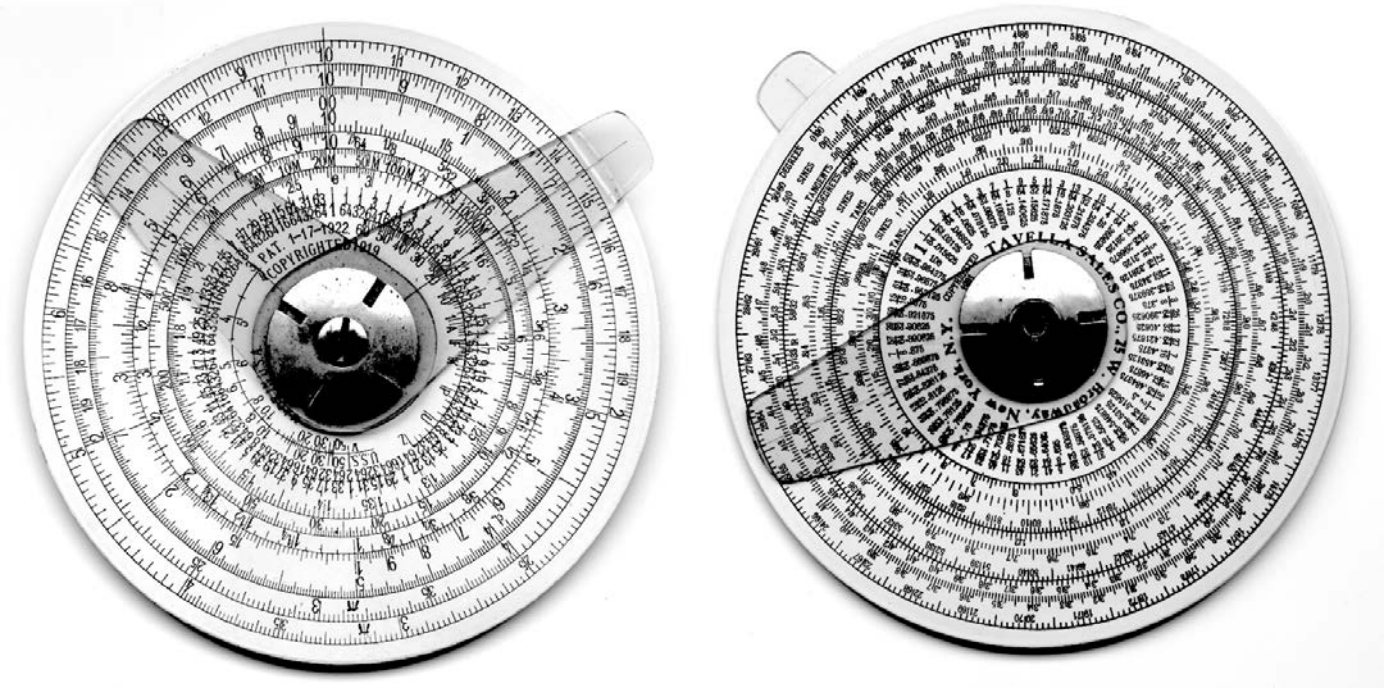


Back

Similar to previous, but now has the Stuart, Florida location.

Materials:	Scales printed directly on white celluloid enamel over an aluminum core.
Size:	$3\frac{13}{16}$ inches in diameter.
Front scales:	C, CI, L, A, Binary, two turn Log Log, Drill and Thread. One e-line per scale.
Back scales:	Tables of trigonometric functions and CFD with four e-lines per scale.
Cursors:	Two celluloid cursors on the front; none of the back.
Location:	GILSON SLIDE RULE CO. STUARD, FLA. MADE IN U.S.A. Probably 1927.
Patents:	Patent granted 1-17-22 (number 1,404,019).
Copyright:	Copyrighted 1919.
Date:	1927 to early 1930's.

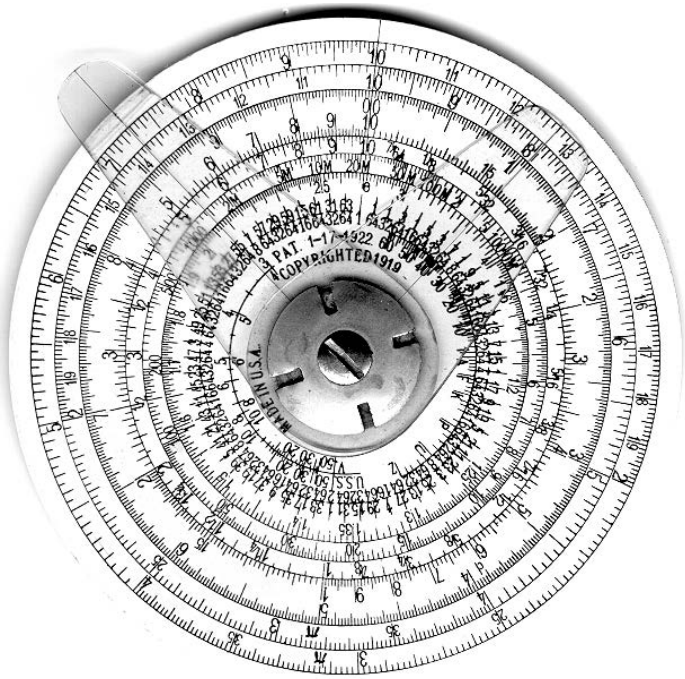
Gilson Midget Slide Rule – Type IV – Version I



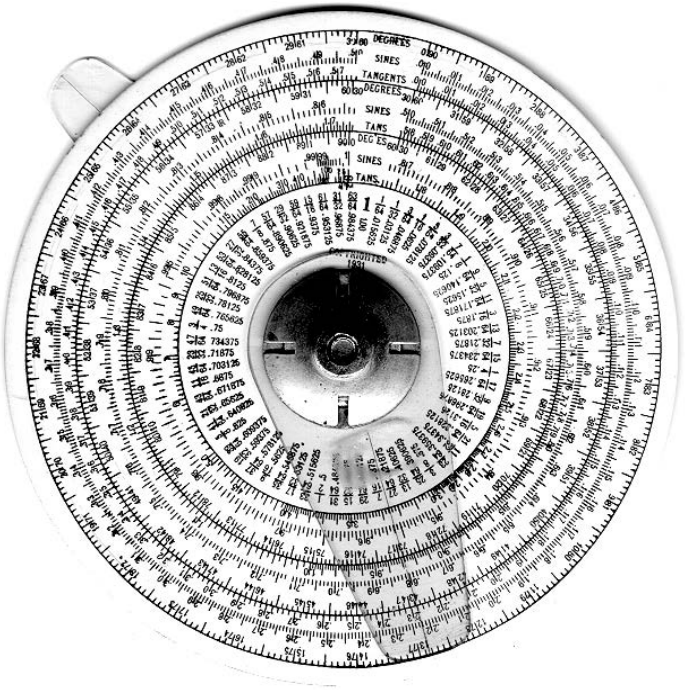
Front **Back**

Materials:	Scales printed directly on white celluoloid enamel over an aluminum core.
Size:	$4\frac{1}{16}$ inches in diameter.
Front scales:	C, CI, L, Binary, two turn Log Log, Fraction, Drill and Thread. One e-line per scale.
Back scales:	New trig scales and CFD. One or no e-lines on scales.
Cursors:	Two celluloid cursors on the front. Now single celluloid cursor on back.
Location:	Marked Tavella Sales Co., 25 West Broadway. NY, NY
Patents:	Patent granted 1-17-22 (number 1,404,019).
Copyright:	Copyrighted 1919 and 1931.
Date:	Early 1930's.

Gilson Midget Slide Rule – Type IV – Version II



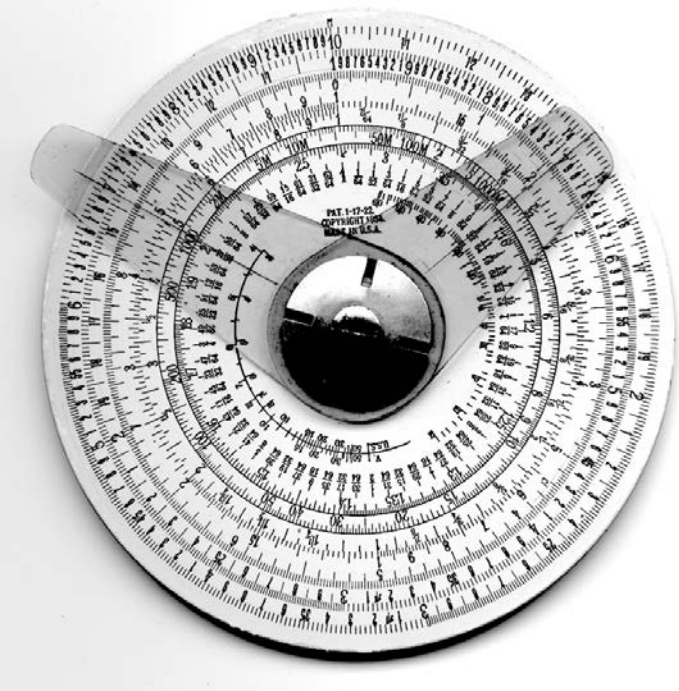
Front



Back

Materials:	Scales printed directly on white celluloid enamel over an aluminum core.
Size:	Now 4 inches in diameter.
Front scales:	C, CI, L, A, Binary, two turn Log Log, Fraction, Drill and Thread. One e-line per scale.
Back scales:	No change. Scales with one or no e-lines.
Cursors:	Two celluloid cursors on the front; now with single celluloid cursor on back.
Location:	No Gilson name, probably due to growing sales to other firms. Made in USA
Patents:	Patent granted 1-17-22 (number 1,404,019).
Copyright:	Copyrighted 1919 and 1931.
Date:	Early 1930's

Gilson Midget Slide Rule – Type V

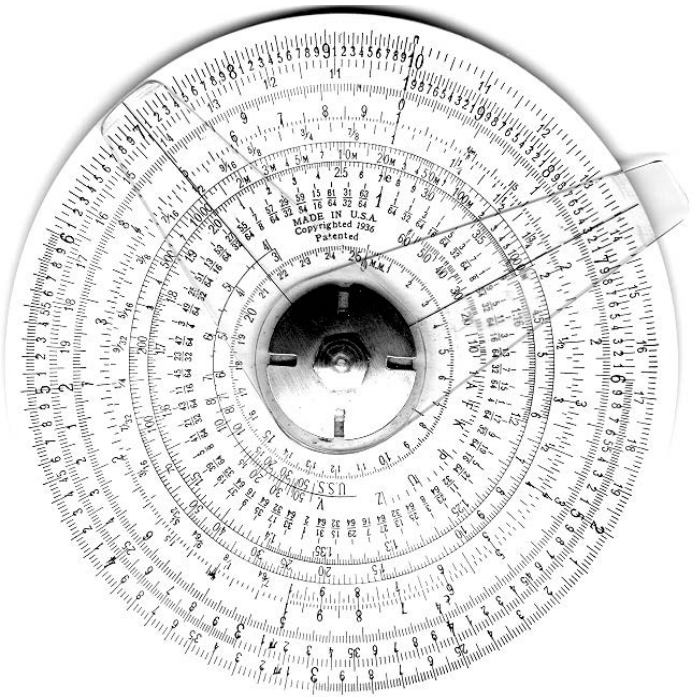


Front

Back

Materials:	Scales printed directly on white celluloid enamel over an aluminum core.
Size:	$4\frac{1}{16}$ inches in diameter.
Front scales:	C, CI, L, A, Binary, two turn Log Log, Fraction, Drill and Thread.
	C scale numbering redone – more detail with no e-lines on the C
	CI, L, A and Binary scales.
Back scales:	No change.
Cursors:	Two celluloid cursors on the front; single celluloid cursor on back.
Location:	Marked Tavella Sales Co., 25 West Broadway. NY, NY (small print).
Patents:	Patent granted 1-17-22 (number 1,404,019).
Copyright:	Copyrighted 1931.
Date:	Early to mid 1930's

Gilson Midget Slide Rule Number – Type VI – Version I

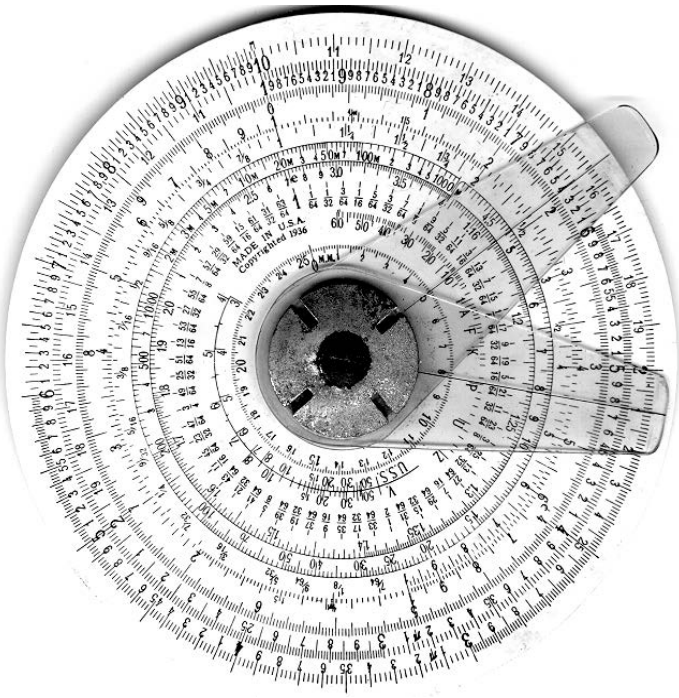


Front

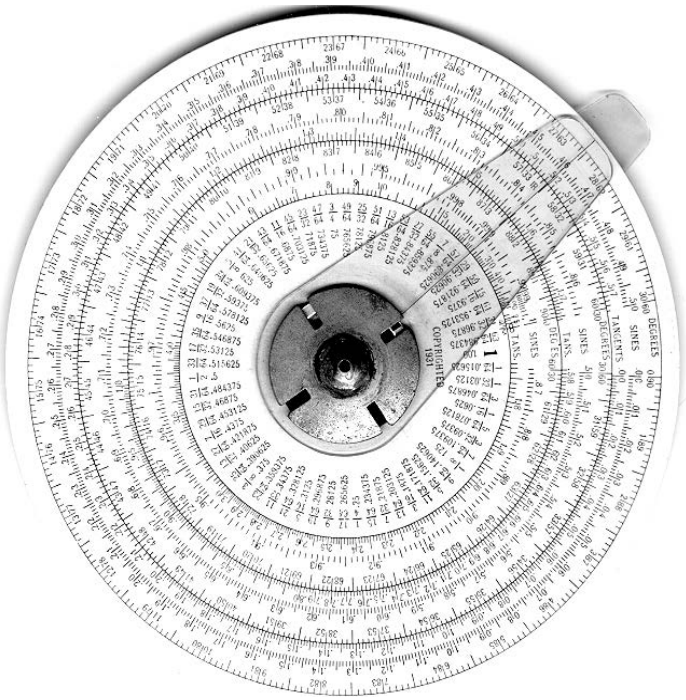
Back

Materials:	Scales printed directly on celluloid enamel over an aluminum core.
Color	Now a light, creamy color.
Size:	$4\frac{1}{4}$ inches in diameter.
Front scales:	C, CI, L, A, Binary, 2 turn Log Log, Fraction, Drill and Thread. Now key marks on C scale extended. No change in e-lines.
Back scales:	No change.
Cursors:	Two celluloid cursors on the front; single celluloid cursor on back.
Location:	No location or name.
Patents:	Now says only “patented”.
Copyright:	Copyrighted 1931 and 1936.
Date:	Late 1930’s plus.

Gilson Midget Slide Slide Rule – Type VI – Version II



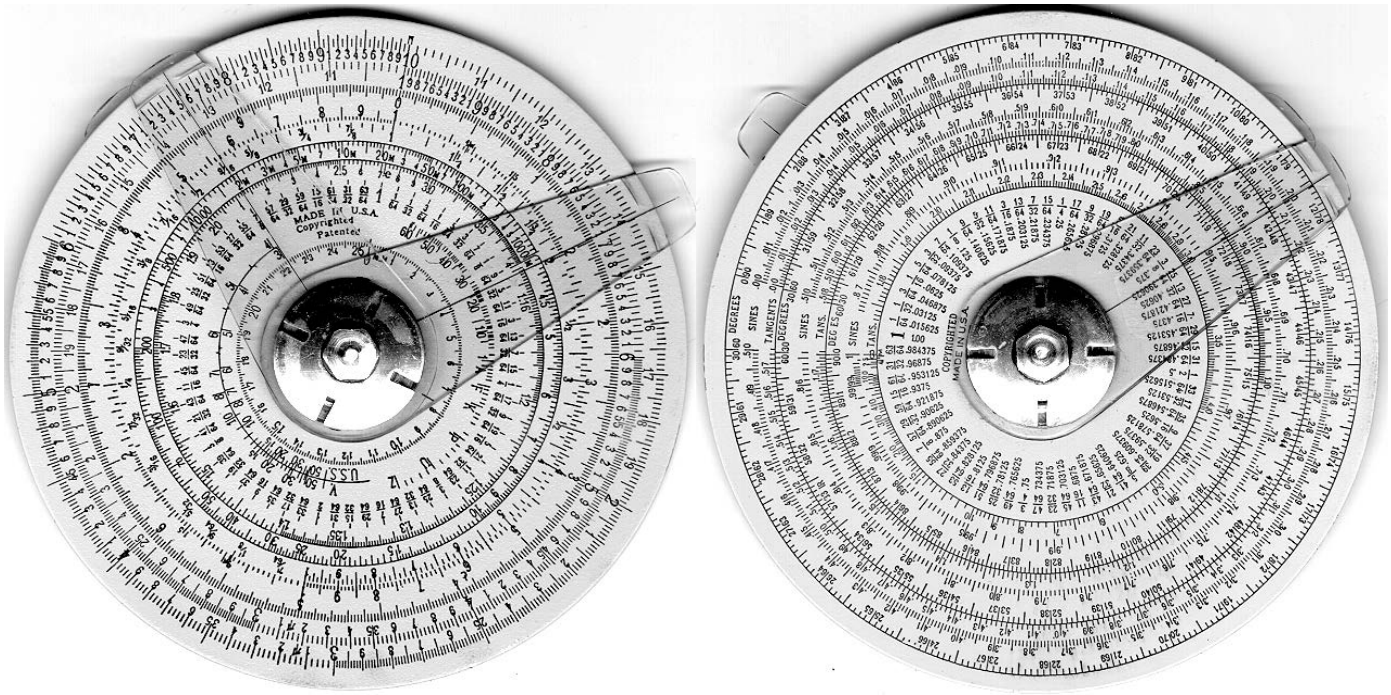
Front



Back

Materials:	This rule has a *celluloid* disc.
Color	White.
Size:	$4\frac{1}{4}$ inches in diameter.
Front scales:	C, CI, L, A, Binary, 2 turn Log Log, Fraction, Drill and Thread.
Back scales:	No change.
Cursors:	Two celluloid cursors on the front; single celluloid cursor on back.
Location:	No location or name.
Patents:	
Copyright:	Copyrighted 1931 and 1936.
Date:	Late 1930's.

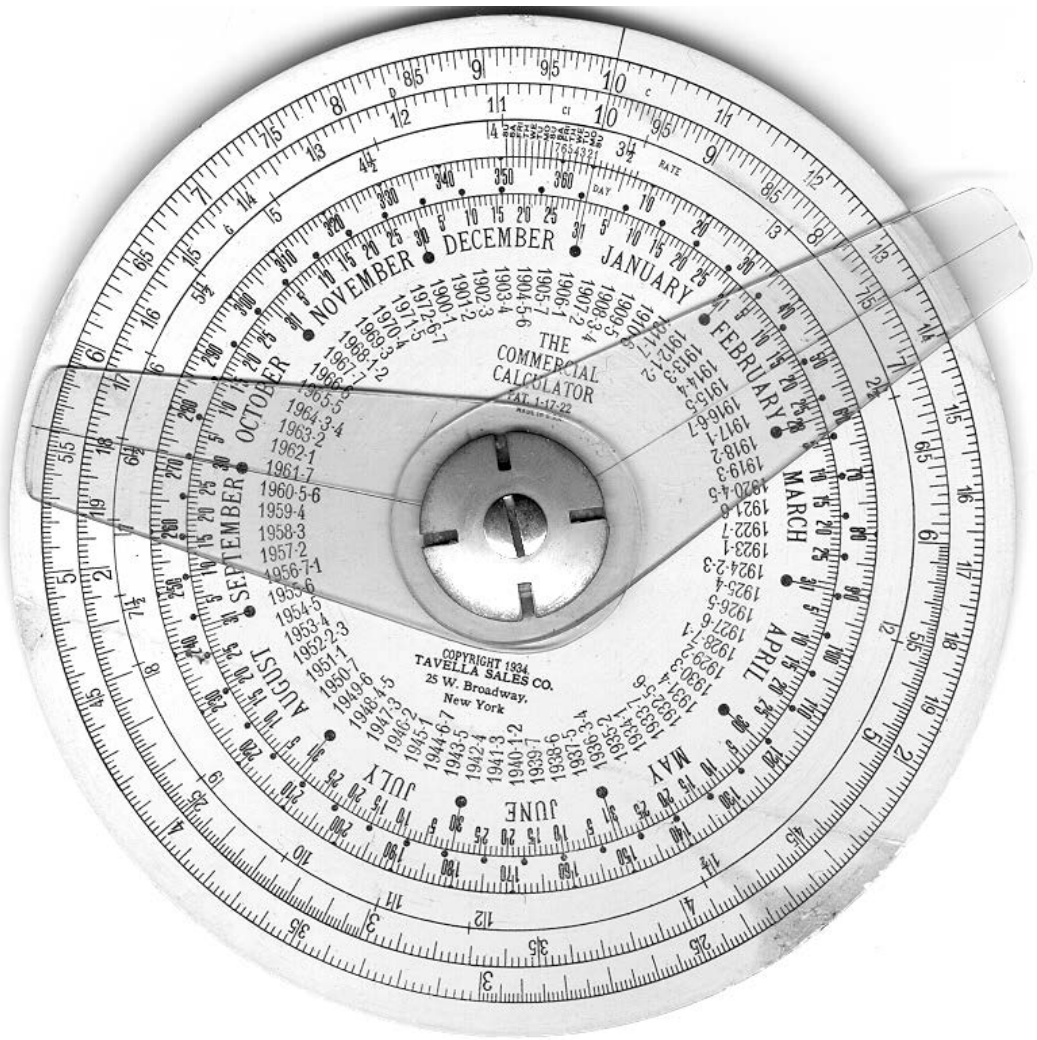
Gilson Midget Slide Rule Number – Type VI – Version III



Front **Back of Number**

Materials:	Celluloid on a metal disk.
Color	Now green.
Size:	$4\frac{1}{4}$ inches in diameter.
Front scales:	C, CI, L A, Binary, Log Log, Fraction, Drill and Thread.
Back scales:	No change.
Cursors:	Two celluloid cursors on the front; single celluloid cursor on back.
Location:	No location or name.
Manual:	The manual is marked *Post Midget Slide Rule, 44EAE630.* The manual also refers to the Gilson Slide Rule Co., Stuart Fla.
Patents:	Now says only "patented".
Copyright:	Copyrighted 1931 and 1936.
Date:	After WWII?

A Special Gilson Slide Rule – The Commercial Calculator



Front

Materials:	White celluloid on a metal disk.
Size:	$4\frac{15}{16}$ inches in diameter.
Front scales:	C, CI, Rate, Day, Month, Year.
Back scales:	No scales on back.
Cursors:	Two celluloid cursors on the front.
Location:	Tavella Sales Co., 25 W. Broadway, New York.
Patents:	Patented 1-17-22.
Copyright:	Copyrighted 1934.

This is a single example of one of many special purpose slide rules that Gilson produced.