

Weber Slide Rules

The Slide Rule is a mechanical instrument for solving all problems involving multiplication, division, powers and roots, without the loss of time and mental effort by solving the same problem in the usual way.

The theory of the rule is simple and easily mastered. With little practice one will become very efficient in using the rule.

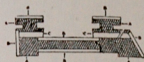
The Slide Rule is not confined to the engineer, but is indispensable to the merchant, student, accountant, importer and manufacturer.

Weber Slide Rules, embody improvements not to be found in other rules.

The **stocks** are made from selected, well-seasoned, built-up hardwood, with white celluloid facings.

The graduations are all engine-divided, clearly and accurately cut, on white celluloid facings and filled black, making reading easy and without eye strain.

The **main improvement**, however, is the **built up construction** of the stock or body of the rule. The rules, constructed as formerly with solid stock and celluloid facing, are always liable to warp, with climatic changes. In **Weber Slide Rules** this drawback is entirely overcome by building up the stock of the rule in strips and inserting in centre a strip of celluloid, compensated for by the pull of the top facing.



The above cut illustrates the construction of the Sphinx Slide Rule. "A" is the wood stock. "B" is the celluloid facing.

ADJUSTMENT—AUTOMATIC

Another important feature of **Weber Slide Rule** is the automatic adjustment, by means of which bothersome adjustments are entirely eliminated; also the uncertainty of physical adjustment.

This adjustment, which is very simple, consists of a series of strong flat steel springs (in 10-inch rule, usually three), built into the body of the rule, connecting the two side pieces of the stock, which has been severed in two, lengthwise, directly under the slide; the entire length of the rule. The steel springs are so adjusted as to take up or compensate any contraction or expansion of the rule, due to climatical change. Thus, we have a Slide Rule completely accommodating itself under all conditions, and a Slide Rule, which can be relied on, at all times, and at all places.

THE CURSOR

Weber Slide Rules are supplied with aluminum frame Cursor of a special length so as to insure complete vision of important figures. The aluminum frame affords protection to glass against breakage.

Slide Rules

SPHINX Improved Slide Rules

The Stocks Are Made of Thoroughly Seasoned and Selected Hardwood, with White Celluloid Facing

10-INCH RULE

No. 4281 **Sphinx Improved Slide Rule**, 10-inch, engine divided, divisions on white facings, glass indicator with single hairline, in case, with directions..... \$5.00

20-INCH RULE

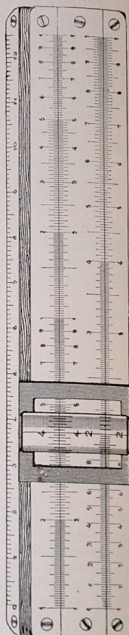
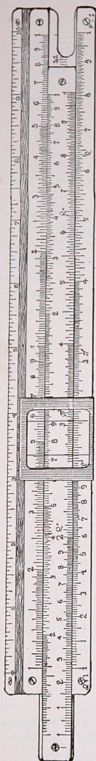
4284 **Sphinx Improved Slide Rule**, 20-inch, engine divided, divisions on white facings, glass indicator with single hairline, in case, with directions.....\$13.00

5-INCH RULE

The **Sphinx Junior Slide Rule** combines the accuracy of a regular 10-inch **Sphinx** with the convenience afforded by its compactness and portability. The **Sphinx Junior** is 5½ inches long, 5/16 inch thick, 1 inch wide and weighs only 1½ oz., but ranks in accuracy and reliability with the larger rules. The construction of this rule embodies all the improvements and advantages of our **Sphinx Rules**, the ultimate subdivisions are as fine as those on the regular 10-inch rules and by means of a powerful, yet compact and convenient magnifying indicator, their value is easily ascertained with the same percentage of accuracy as can be obtained by the 10-inch rules.

No. 4286 **Sphinx Junior Slide Rule**, 5-inch, engine divided, divisions on white facings, magnifier indicator, imitation leather case, with directions \$5.00

The "Sphinx"
(Simple) Slide
Rule
Illustrating
Nos. 4281
to 4284
inclusive.



The "Sphinx Junior"
Slide Rule No. 4286

Slide Rules

Weber MANIPHASE Slide Rule

For general engineering practice, for college work, field work and usual commercial uses where quick and reasonably accurate readings are necessary, the **Weber Maniphase** rule may be used with great facility, even by one unacquainted with the use of logarithms with very little practice, while at the same time, it is designed to perform several more than the usual number of operations required of a slide rule. The two edges of the rule are provided with an inch scale and a centimeter scale, respectively, which scales are quite convenient for general office use.

This rule, in addition to the usual operations of multiplication, division, squares and square roots, etc., is designed for the solution of problems involving cubes, cube roots and many higher powers and roots, logarithmic computations and for solving problems involving the product of three factors with one setting of the cursor.

The cursor of the **Weber Maniphase** Rule is also of a newer type, being wider than the ordinary cursor and also being provided with three hairlines instead of one. With these three hairlines it is possible to determine at one setting, the area of a circle of given diameter, or the diameter of a circle of given area.

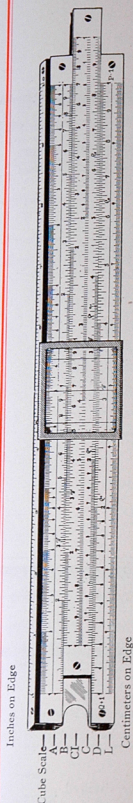
This arrangement of the cursor also gives a clearer reading and avoids the annoyance of the index figures being covered up by the metal parts of the cursor. The hairlines are also made different in color, so as not to become confusing.

Price

No.		Each
4288	Weber Maniphase Slide Rule, 10-inch, engine divided, divisions on white facings, glass indicator with three hairlines, in imitation leather case, with directions	\$5.75
4288-A	Weber Maniphase , same as No. 4288, but 6 inches long, double hairlines on cursor. Finely graduated and reads as accurately as the 10-inch rule, in imitation leather case	5.25
4288½	Weber Maniphase Slide Rule, 20 inches long...	20.00

The **Weber Maniphase** Slide Rule has proven itself a favorite among engineers and the profession generally.

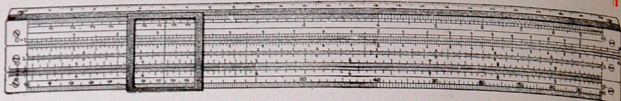
Note: For genuine leather carry cases for slide rules, see page 294.



F. Weber Co., Inc.

Slide Rules

The Weber PRECISION Slide Rule



No. 4289

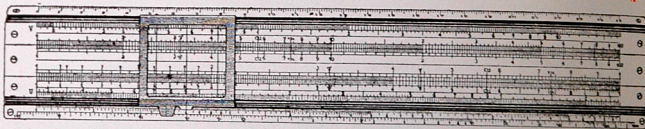
The mean error in the product of two factors, calculated with the scales A and B (in which the length of the logarithmic unit is 12.5 cm.), lies between about 0.12—0.08 per cent of the result. The latter accuracy, however, can be obtained only by careful practice and long use of the instrument. For many purposes, greater accuracy is required, especially in the calculation of complex expression, where the repeated addition and subtraction of lengths have to be made without reading the intermediate results; and for various purposes in practical surveying, e. g., checking triangulation, balancing of errors, and the calculation of areas.

To satisfy these requirements, a slide rule has been made, which allows of a considerably greater accuracy in the result. With fairly rapid use and with an exact knowledge of the instrument, an error of 0.03 per cent in the result, with two factors, will not generally be exceeded. This increase in accuracy is obtained by making the scale length of the logarithmic unit equal to 50 cm. instead of 12.5 or 25 cm. The scale is, however, not made in one length of 50 cm., but in two lengths of 25 cm. each, so that the rule is convenient for setting and reading, while preserving the size of a pocket instrument; also in order that the harmful effect of expansion and warping, which becomes more appreciable in long rules, shall not impair the accuracy of the instrument. All the other scales, including those on the back of the slide, are based on the scale length of 50 cm.; so that all calculations with this slide rule have a uniform and considerably greater degree of accuracy than those made with the ordinary slide rule. It is, therefore, called the "Precision" Slide Rule.

At first sight, the arrangement may appear difficult to follow; but as soon as some familiarity with the instrument has been acquired, it is seen that on account of the arrangement of the scales, not only does the slide rule become more intelligible, but the increase in accuracy which can be obtained is very marked.

No. 4289 Weber Precision Slide Rule, 10-inch, engine divided, celluloid faced, cursor with one hairline, in case with instructions Each \$10.00

The ELECTRIC Slide Rule



No. 4291

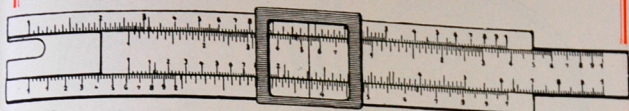
Especially evolved in response to a demand for a suitable slide rule for Electrical Engineers and for students in Electro-Technology. Serves in an excellent manner the facility of calculation of all electro-technological problems. The table of constants, on the reverse of the rule, makes the reference to hand-books almost superfluous.

No. 4291 Electric Slide Rule, 10-inches only, celluloid faced, engine divided, in case with instructions Each \$8.75

Artist and Drawing Materials

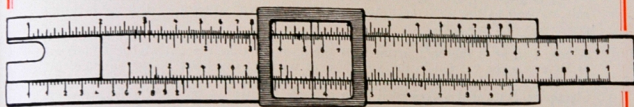
Slide Rules

STUDENTS' Slide Rule



- | | | |
|--------|--|--------|
| No. | | Each |
| 4281-5 | Student Slide Rule 10 inches long. Stock made of boxwood, with graduations on white enameled face, celluloid cursor, in plain case, with directions | \$1.00 |
| 4281-S | Student Slide Rule , 10 inches, like No. 4281, but without celluloid facings, aluminum framed, single hairline cursor in case, with instructions | 2.00 |

The DWARF Slide Rule



No. 4287. Illustration full size.

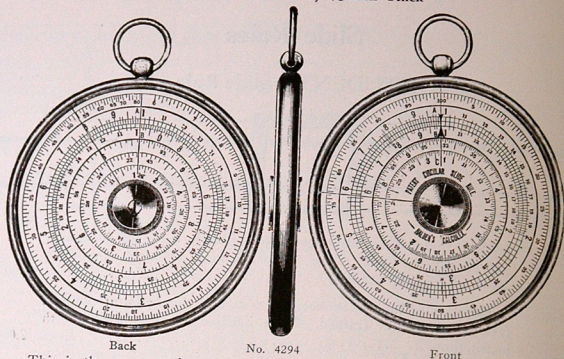
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| No. | | Each |
| 4287 | Dwarf Slide Rule , for the vest pocket, 4-inch, engine divided, celluloid facings, aluminum indicator, in case, with directions.... | \$2.50 |
| 4287-L | Dwarf Slide Rule , No. 4287, in genuine leather case | 3.00 |

F. Weber Co., Inc.

Slide Rules

The Improved Halden Calculex

2 $\frac{3}{8}$ -inches Diameter by $\frac{1}{4}$ -inch Thick



This is the most perfect and durable of all circular slide rules, and represents an important advance in the theoretical and mechanical principles upon which the Calculex is based.

It is a metal dial duplex slide rule with metal packing and a lock nut which makes it impossible for the instrument to get out of order. It can neither warp nor shrink, owing to its being entirely of metal.

It is acknowledged to be the most compact, convenient and simplest slide rule, as well as the most accurate circular rule, ever known to the engineering profession of the world.

The **Book of Rules** is a very complete manual and has been compiled and arranged to fit in the compartment of the case, so that the calculator and **Book of Rules** can be carried in the vest pocket without the least inconvenience.

The Calculex, briefly described, consists of a disc within a ring, which together form a dial surrounded by a rim and protected on both sides by glass discs on which the hairline is marked radially and is revolved by the two thumbs. The centre of the dial is turned by holding the nut on each side between the finger and the thumb, the outside of the dial being fixed to the rim.

The log of a number, squares, square roots, cubes, cube roots, angles, etc., can be found by reading direct from the hairline without moving the dials. It is capable of solving more problems and requires only about one-quarter of the movements necessary with other slide rules.

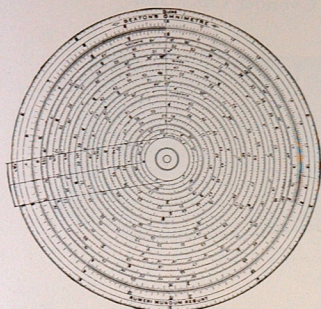
The front face contains five circles of scales. The outer scale, or No. 1, is a scale of logarithms; Nos. 2 and 3 are calculating scales A and B; Nos. 4 and 5 are square roots of scale B.

The back face contains six circles of scales. The outer scale, or No. 6, is a scale of angles; Nos. 7 and 8 are calculating scales for inverse proportions; Nos. 9, 10 and 11 are cube roots of scale B.

No. 4294 Halden Calculex, in case, with Book of Rules. Complete..... Each \$7.50

Artist and Drawing Materials

Slide Rules



SEXTON'S Improved
Omnimetre or Improved
Circular Slide Rule
7 Inches Diameter

Functions: Logarithms, Numbers,
Squares, Square Roots, Cubes, Cube
Roots, Sines, Tangents, Versed Sines,
Secants.

No. 4295-3

No. 4295-3 Sexton's Improved Omnimetre Each \$4.00

Sexton's Improved Omnimetre is a circular slide rule made essentially of two cardboard discs and a transparent runner revolving about a common centre. In the old style instrument the upper and smaller disc was placed on top of the lower disc. In the improved instrument the lower disc is mounted on heavy bristol board to make it more durable, with the centre of the disc, equal to the size of the upper disc, cut out. The upper disc fits into this space so that the two discs are flush where they meet. This permits of easier readings and prevents the edge of the upper disc from wearing off due to the action of the runner. There are perforations in the backing under the upper disc to facilitate manipulation.

Any problem which can be stated as a formula, is capable of solution on the Omnimetre. The advantages of this instrument as compared with the slide rule in general use, may be stated as follows:

Its scales being circular, the continuity of its operation is more satisfactory. The powers, roots and trigonometrical functions are directly used as factors. All annoyance resulting from irregular slide action due to atmosphere change is entirely avoided. Powers, roots, sines, versed sines, secants and tangents are obtained instantly by simple inspection and the Omnimetre affords much finer readings of all these functions.

The scope of the instrument may perhaps be best shown by the following formulæ, the operations of which it performs with rapidity and certainty:

$$\sqrt{\frac{324 \times 217^2 \times \text{VERS. SIN. } 32^{\circ} 40'}{14.25^2 \times 2.37}} = 2.718$$

$$\sqrt[3]{1725^2 \times \sqrt[3]{237^2}} = 1149$$

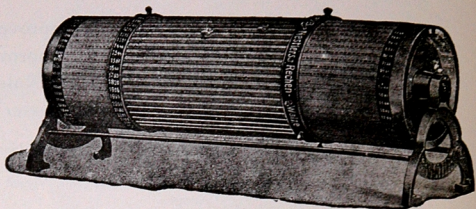
$$\sqrt{\frac{\text{SECANT } 83^{\circ} 15'}{1325^2 \times \text{SEC. } 71^{\circ} 25'}} = 1.99$$

Section 8 } Pantographs, Planimeters,
Protractors, Slide Rules

F. Weber Co., Inc.

Slide Rules

Weber-Nestler Cylinder Calculator



No. 4296

No. 4296 Weber-Nestler Cylinder Calculator, in case with directions Each \$65.00
Length: 20 $\frac{3}{4}$ inches.
Diameter: 6 $\frac{1}{4}$ inches.
Accuracy: Equal to a slide rule 488 inches long.

The Weber-Nestler Cylinder Calculator will solve all problems consisting of multiplication and division or such as are compounded of these. For example, the calculation of weights, prices and quantities, individual and total costing, proportioning of wages, interest, percentages, arbitrage, working out cubic contents, etc.

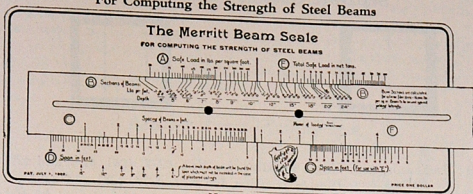
The Weber-Nestler Cylinder Calculator will solve most problems in a fraction of the time usually required; it avoids mental strain and very greatly increases the factor of safety. It works absolutely noiseless, and this, combined with its light weight, permits of the Weber-Nestler Cylinder Calculator being used anywhere, even at the telephone. Its unique qualities and its performances in most cases broach on the incredible and are far ahead of everything hitherto attainable by all other calculation appliances and machines. As the cylinder comprises no wheel gearing whatever, there is no possibility of its getting out of order.

Weber-Nestler Cylinder Calculator is provided with logarithmic scales, which are marked in like manner, but in different colours, both on the cylinder and the slide. By the mere juxtaposition of two fields multiplication is obtained, and by just as simply subtracting one field from another we get division. The fields placed end to end would give a length of 488 inches, so that by means of one single setting, results of four to five figure accuracy or, by using the division method, to any degree can be obtained.

Artist and Drawing Materials

Slide Rules

The Merritt Beam Scale For Computing the Strength of Steel Beams



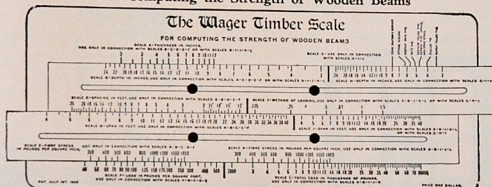
No. 4298

Absolutely Accurate. Adapted to All Conditions. Load, Spacing, Span, Etc., Found Instantly. Mistakes Absolutely Eliminated

The Merritt Beam Scale for computing the strength of steel beams is based on the principle of the Engineers' Slide Rule and was designed to simplify computations of this kind, and to eliminate all chance of errors. Tables and formulae are absolutely unnecessary when the Merritt Beam Scale is used, and the speed with which answers to widely varying problems may be given can hardly be appreciated by anyone who has not had the pleasure of using it.

No. 4298 Merritt Beam Scale, on Heavy Bristol Board Each \$1.00

The Wager Timber Scale For Computing the Strength of Wooden Beams



No. 4299

For Computing the Strength of Wooden Beams Absolutely Accurate. Adapted to All Conditions. Load, Spacing, Span, Etc., Found Instantly. Mistakes Absolutely Eliminated

To illustrate the simplicity of the Scale the following is given:

How far apart shall 6-in. x 12-in. timbers of white oak be placed to safely support a load of 150 pounds per square foot, the span being 18 feet, and New York law governing the design?

Select the fiber stress for white oak allowed in New York City (given on back of Scale: 1000 pounds). Place 12 in scale B below 6 in scale A. Place 1000 in scale E over 150 in scale F. Above 18 in scale D read 2 ft.-0 in. in scale C.

The Wager Timber Scale, for computing the strength of wooden beams, contains more information than could be given in 500 pages of tables. It is based on the principle of the Engineers' Slide Rule, and five minutes' inspection will convince anyone that it is simplicity itself.

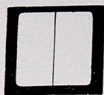
No. 4299 Wager Timber Scale, on Heavy Bristol Board Each \$1.00

Section 8 } Pantographs, Planimeters, Protractors, Slide Rules

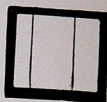
F. Weber Co., Inc.

Slide Rules

Separate Cursors—Leather Cases

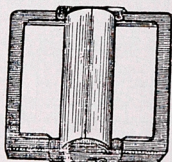


B

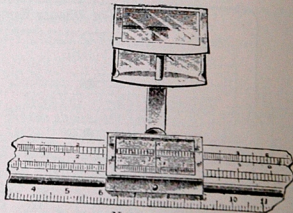


C

No.		Each
4276-B	Indicator, with Single Hairline, for Nos. 4277, 4281, 4287 and 4292	\$.75
4276-C	“ “ Double Hairline, for Nos. 4277, 4281 and 4292	1.00
4276-E	Cursor, with Single Hairline, for all 10-inch, 15-inch and 20-inch slide rules, Nos. 4283, 4284, 4284-A, 4289, 4291	1.00
4276-F	Cursor, with 3 Hairlines, for No. 4288, Sphinx 10-inch Maniphase Slide Rule	1.25
4276-G	Magnifying Cursor, for Nos. 4286 and 4287	1.50
4276-H	“ “ “ No. 4281	2.00
4276-K	“ “ “ No. 4288 (and similar rules)	2.50
4276-L	“ “ “ 20-inch rules	2.50
4276-M	Improved Magnifying Attachment, with Plano-Convex Lenses . Folds down on rule, when not in use	4.50



No. 4276 G to L



No. 4276 M

LEATHER CASES

Substantially Built of Stiff Sole Leather, Machine Sewed

No.		Each
4276-P	For all 5-inch Slide Rules	\$1.25
4276-R	“ “ 6 and 10-inch Slide Rules	1.75
4276-S	“ “ 15, 20 and 24-inch Slide Rules	3.00

Note.—In ordering separate cursors, or leather case, give name or number of slide rule to be fitted.

Artist and Drawing Materials