CATALOGUE

OF

KEUFFEL & ESSER CO.

NEW YORK

BRANCHES:
CHICAGO — ST. LOUIS

1897.

NEW YORK 1869.

CHICAGO 1883

1897

CATALOGUE
AND PRICE LIST
OF
KEUFFEL & ESSER CO.

MANUFACTURERS AND IMPORTERS
OF
DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS

TRADE MARK.

NEW YORK

127 FULTON STREET.   42 ANN STREET

BRANCHES:
CHICAGO : 111 MADISON STREET.
ST LOUIS : 708 LOCUST STREET.

FACTORIES :
HOBOKEN. N.J.

PHILADELPHIA 1876.

28TH
EDITION.
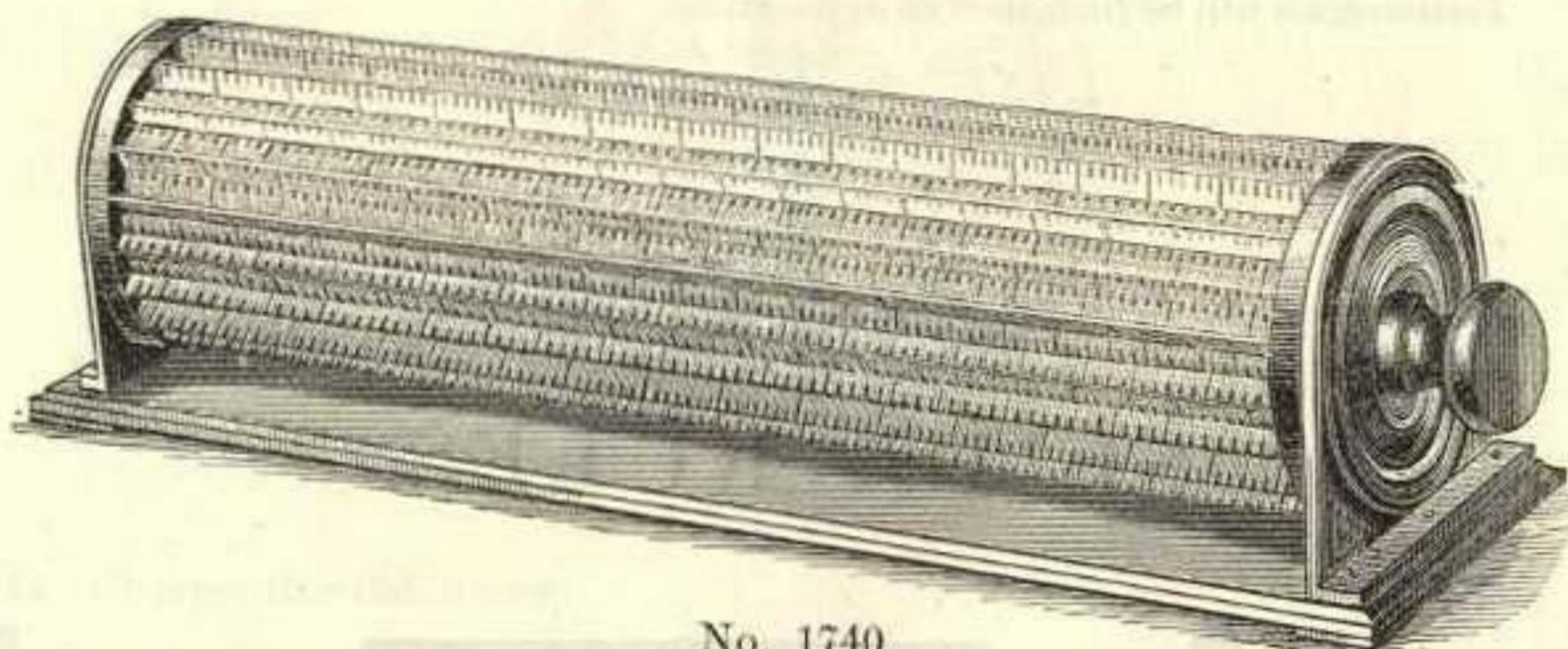
PRICE 50 CENTS.

CHICAGO 1893.

SLIDE RULES.

THACHER'S CALCULATING INSTRUMENT.

No. 1740.

1740. Thacher's Calculating Instrument, for performing the
greatest variety of useful calculations with unexam-
pled rapidity and great accuracy, cylinder 18 in., in
polished Mahogany Box . . . . each $ 35 00

1741. do. do. do. with 3 in. reading glass sliding
on brass bar, adjustable to any part of the instru-
ment and for focus . . . . " $ 45 00

The Thacher's Calculating Instrument consists of a cylinder 4 inches in diameter
and 18 inches long, working within a frame work of triangular bars. The scales, the
longest ever made, contain upwards of 33,000 divisions and 17,000 engraved figures, exe-
cuted upon a dividing machine, made expressly for this instrument; they are of such
great length viz.: 30 and 60 feet each, that results can be obtained to the fourth and
usually to the fifth place of the figures, sufficient to satisfy nearly every requirement of
the professional or business man.

By the use of this instrument the drudgery of calculation is overcome, the mind is
greatly relieved, and the results obtained are more reliable than when worked out in the
usual way. Examples in multiplication, division, proportion, powers or roots, involving not
more than three quantities, are solved by one operation, and any number of values of a
single variable are found by one setting of the instrument, for example, any of the formula

$$\frac{ax}{b} \quad . \quad \frac{ax^2}{b} \quad . \quad \frac{ax}{b^2} \quad . \quad \frac{ax_2}{b^2} \quad . \quad \sqrt{\frac{ax}{b}} \quad . \quad \sqrt{\frac{a^2x}{b}}$$

in which a and b may have any values and x any number of values are readily solved by
one setting. Squares, square roots, cube roots and reciprocals are also readily worked.

The useful applications of the instrument are almost unlimited; among these may be mentioned, finding the stresses and sections in trusses and girders, mensuration, estimates of work and material, solving trigonometrical formula, making and applying tables, problems in the mechanical powers, machinery and hydraulics, problems of simple and compound interest, discount and fellowship, pro-rating, gauging, exchange and the conversion of weights and measures.

It will be found useful to the Engineer, Architect, Actuary, Scientist, Manufacturer, Mechanic, Navigator and Accountant.

A book containing a full description of the instrument, all the necessary rules for operating it and numerous examples, both general and special, will accompany each instrument.

Testimonials will be furnished on application.

FULLER'S

SLIDE RULES.
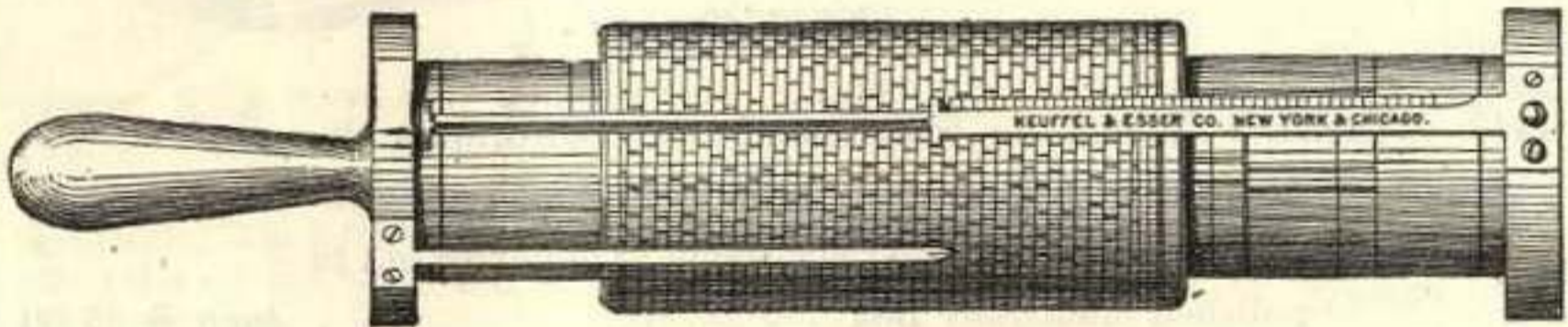
No. 1742.

1742.   Fuller's Spiral Slide Rule, in mahogany box, with
      Directions . . . . each $ 28 00

Fuller's Spiral Slide Rule consists of a wooden cylinder which can be moved up or down or around a wooden axis held by a handle. The scale is laid off on this cylinder. It is a single logarithmic scale, 42 feet long, wound spirally. Ratios are established by means of a pointer attached to the axis at the handle and another attached to a brass tube sliding in the axis. This latter bears two indexes whose distance apart is the axial length of the complete spiral.

CHARPENTIER CALCULATOR.
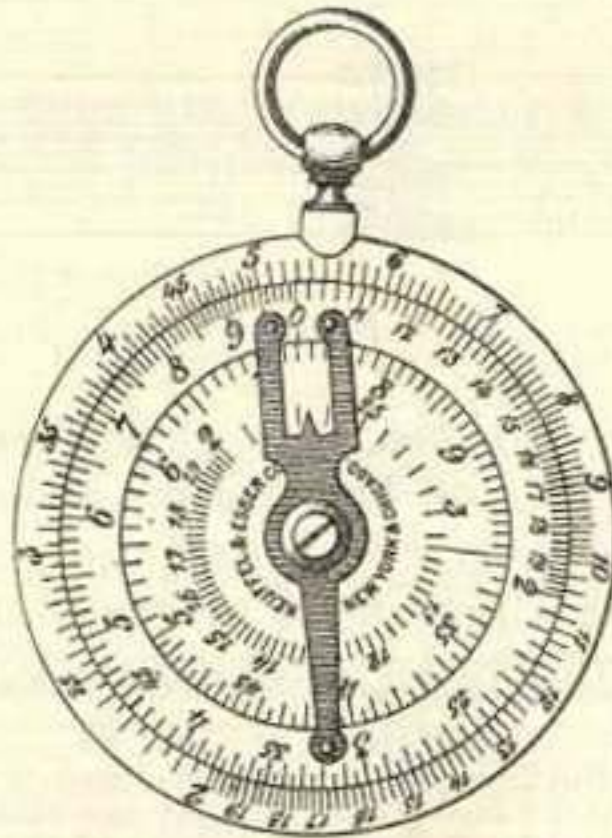
No. 1743.

1743. Charpentier Calculator . . . . each $ 5 00

The Charpentier Calculator is a circular Slide Rule, 2⅜ in. diameter, with a circular slide which is revolved and set by the handle as may be required. This instrument reads scale against scale like the ordinary slide rule, and being made of metal. is but slightly subject to atmospheric variations. Square roots, sines and tangents as well as logarithms may be found with it, and as the circular scale is equivalent to a straight one 5⅞ in. long, results may be read off with a fair degree of accuracy. The small dimensions and light weight of the instrument make it a most useful pocket companion.

BOUCHER CALCULATOR.

No. 1743½.

1743½. Boucher Calculator . . . . each $ 8 50

The Boucher Calculator resembles an ordinary stem-winding watch, with glass covered dials back and front. Ratios are set off by means of pointers or indices which, as well as the movable dial are moved by means of the "stem-winder" key. It is 2 1|16 in. diameter by 9|16 thick and very convenient for the pocket.

KEUFFEL & ESSER CO. NEW YORK.

DUPLEX SLIDE RULES.
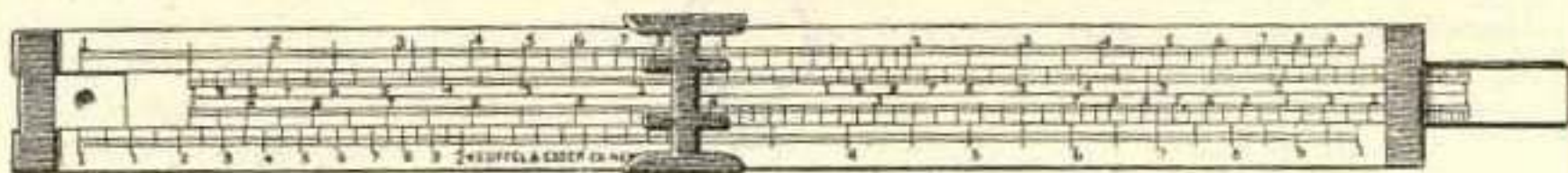

No. 1744.   Patented October 6th. 1891.

1744.   Duplex Slide Rule, patented, 10 in., divided on cel-
              luloid facings, with brass runner and with
              Arithmetical Slide, with Directions, ... in case each $ 6 50

1744 B.   do.   do.   but with both the Arithmetical and
              Trigonometrical Slides (interchangeable) . . "   "   "   8 00

The "**DUPLEX**" **SLIDE RULE** is similar in most respects to an ordinary **Mannheim** slide rule (No. 1746), its distinguishing feature being that the slide itself is of the same thickness as the rule and has its two faces flush with those of the rule. The rule and slide are fully graduated on both sides, scales A and D being alike on each side of the rule, whereas scales B and C on the slide, are graduated on the upper face in the usual way like A and D, but on the under face in reversed order. the initial indices being on the right hand, and the scales progressing toward the left, as shown in the figures. The indices of the scales of one face coincide with those of the other face, and a metallic runner. encircling the whole rule, enables coinciding points on any scale of either face to be at once found.
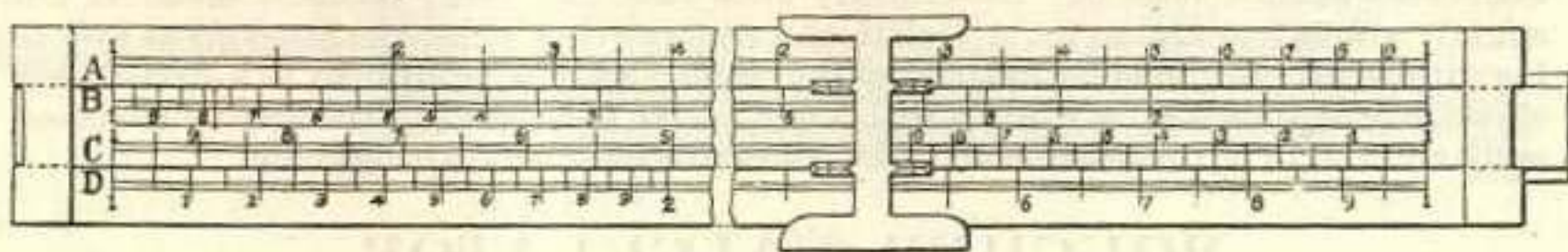
Front or Upper Face.
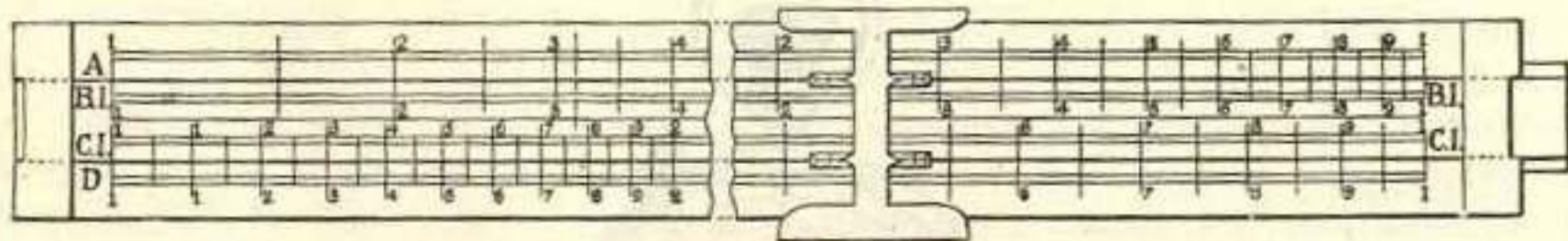
Back or Under Face.

This improvement simplifies considerably the working out of many complex calculations, besides allowing of such computations as

$$a \times b \times c = x, \sqrt[2]{a^5} = x,$$

etc., to be performed with **one single** setting of the slide. This slide is designated above as the "Arithmetical."

To still further increase the value of the Duplex Slide Rule, an interchangeable "Trigonometrical Slide", having scales of sines, tangents and equal parts on one side, and the ordinary scales B and C on the other side, is also provided when desired, by means of which a great variety of problems, involving the functions of the sides and angles of triangles, may be quickly solved, the trigonometrical formula being worked out on one side and the arithmetical portion on the other side of the slide rule without inversion or displacement of the slide.

With these modifications the necessity of taking the slide out to invert it, is avoided, besides facilitating the setting of the slide and reading of results, as scales A and B I, as well as C.I and D lie side by side ; all risk of damaging the slide during the operations of inversion is also removed.

GUNTER SLIDE RULE.

No. 1745.

1745. Slide Rule, 10 in. boxwood, polished . . . . each $ 3 50

This is the old form of Slide Rule, now generally superseded by improved forms like the Mannheim and the Duplex. The top scale on the rule and the two scales on the slide are double, being graduated from 1 to 100, while the bottom scale on the rule is a single one, graduated from 1 to 10, giving the square roots of the other scales. All ordinary computations have to be effected on the upper scales, so that the same degree of accuracy can not be attained as with the Duplex and the Mannheim.

MANNHEIM SLIDE RULES.

No. 1746.

1746 Slide Rule (Mannheim), 10 in., divided on celluloid facings,
    with brass indicator, in case, with Directions . . .   each $ 4 50
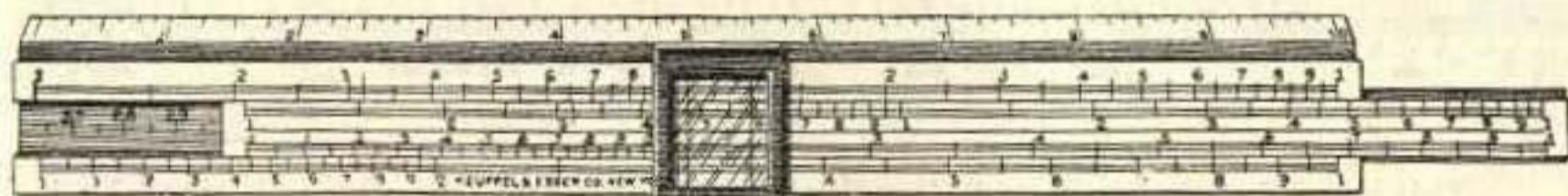
No. 1746½.

1746½. Like No. 1746, but indicator with glass face . . . . . . each $ 5 00
1748. Slide Rule (Mannheim) 20 in., divided on celluloid facings,
    with brass indicator, in case, with Directions . . .   "   16 50
1748½. Like No. 1748, but indicator with glass face . . . . . .   "   17 00

The 20 in. Slide Rules have the great advantage that they admit of finer divisions and consequent closer reading than the 10 in. The longer rules are naturally more liable to warp and may give rise to complaint, but they are nevertheless often preferred on account of the advantages of the finer divisions.

K. & E. STUDENT'S SLIDE RULE.

No. 1749—1.

The Student's Slide Rule is intended for the use of students, to enable them to become familiar with the slide rule without incurring the relatively heavy expense of obtaining the regular rule intended for professional use.

It is in general like our Mannheim Slide Rule, of the same size and with the same graduations, except that the vertical edge is not divided. The body of the rule and the slide are of thoroughly seasoned hardwood, and are backed by stout binder's board. The graduations are on a special strong and tough white paper facing and have a protective coating. The brass indicator or runner holds a piece of thin transparent celluloid marked with a hair-line. The index mark for the under side of the slide is also a hair-line on celluloid. On the under side of the rule there is a table of the most frequently occurring proportions and formulas. With each rule we furnish plain directions, prepared by Prof. J. B Johnson.

1749–1. Student's Slide Rule, 10 in., with Indicator and Directions, each $ 1 00

STADIA SLIDE RULE.

1749. Stadia Slide Rule, 20 in. celluloid faced, in case, with
Directions . . . . each $ 13 50

The Stadia Slide Rule is especially designed to solve the two equations generally used in stadia measurements, viz.:

$$\text{Height} = \frac{\text{Stadia Distance}}{2} \times \text{Sin } 2\,\alpha$$

and

$$\text{Distance} = \text{Stadia Distance} \times \text{Cos. } 2\,\alpha.$$

It is 20 inches long, with fine graduations on celluloid, and will be found of great use to the Topographer, as it enables him to compute quickly the results of his labors in the field.

BOOKS ON THE SLIDE RULE.

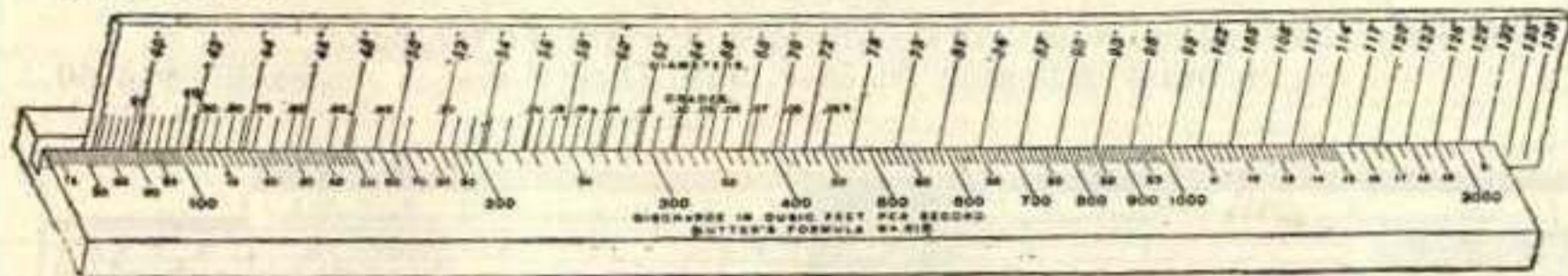Directions for Mannheim Rule, (the same as furnished with the
rule) . . . . each $ 25
"The Slide Rule," complete Manual, by WM. Cox . . . . " 50
Directions for Duplex Slide Rule, by WM. Cox . . . . " 25
Manual of the Duplex and Mannheim Slide Rules, bound together " 75

COLBY'S SEWER COMPUTER.

No. 1749–2.

This is a slide rule graduated after Kutter's formula and the values obtained by it are the same as given by that formula, the value of the co-efficient "N" being taken at .013. It gives the relations between discharge, diameter and grade for round sewers from 6 inches to 20 feet in diameter and for egg-shaped sewers from 12 x 18 inches to 12 x 18 feet, and the grades for either from .05 to 20 per cent. The rule is 20 inches long.
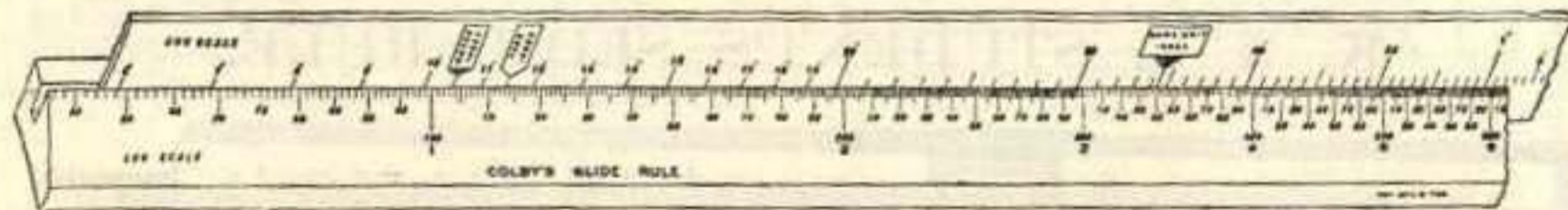The few directions required, are furnished with the rule.

1749–2. Colby's Sewer Computer, hardwood, in case . . . . . each $ 10 00

COLBY'S SLIDE RULE

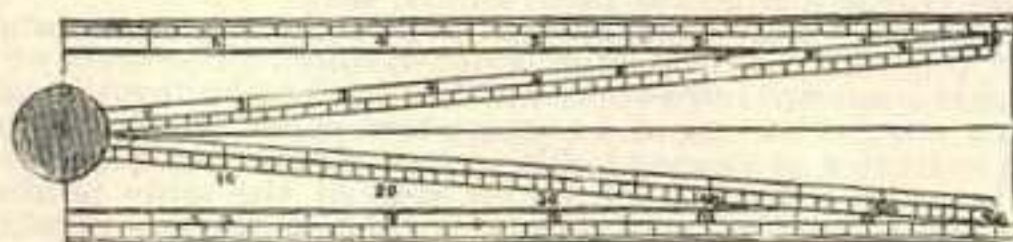No. 1749–3.   FOR STADIA REDUCTIONS.   Patented July 30th, 1895.

This rule gives differences of elevations between two points when Stadia-Reading and vertical angle are known.

1749–3. Colby's Stadia Slide Rule, 50 in., in case, with Directions, each $ 20 00

IVORY AND BOXWOOD SECTORS.

No. 1749–7.

1749–7. Boxwood Sector, 12 in, brass joint, hand divided . . . each $ 1 00
1749–8. Ivory Sector, 12 in., German silver joint, hand divided " 2 25