L. Smith.

Measuring Logs.

No. 104,368. Patented Jun. 14, 1870.

Fig: 1.

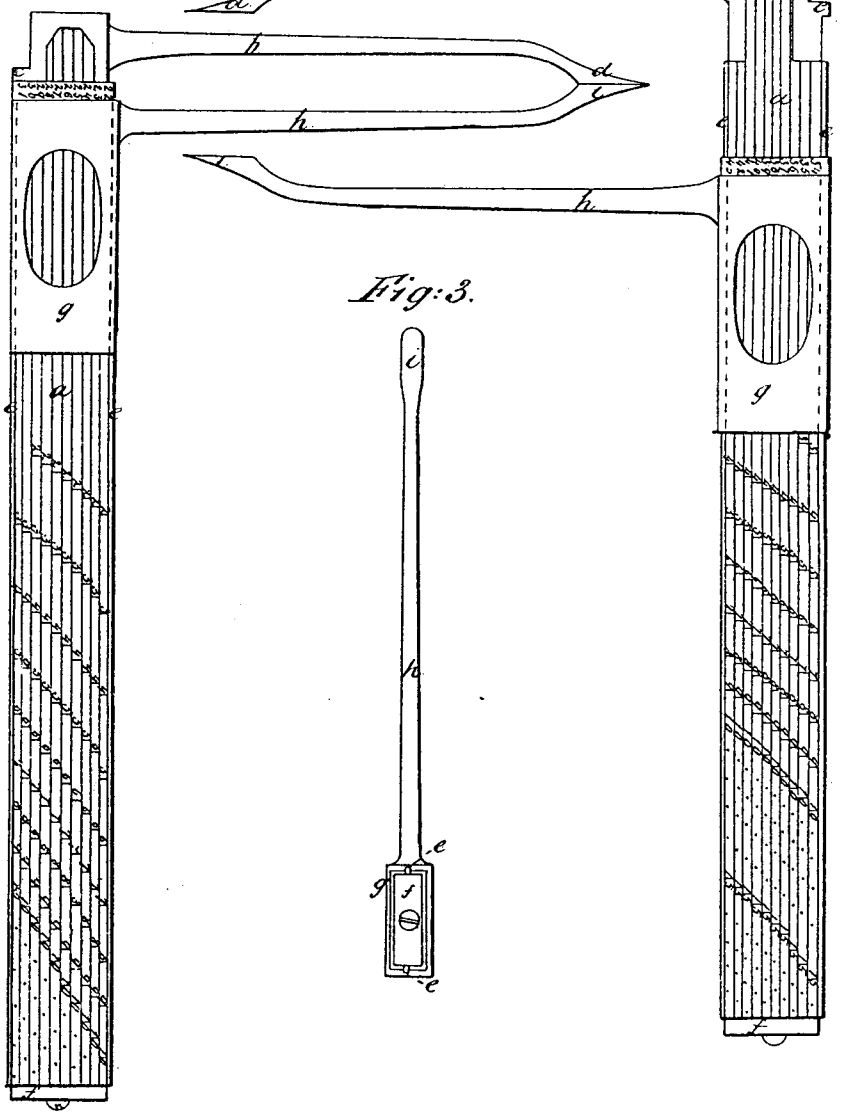

Fig: 2.

Fig: 3.

Witnesses.
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LUTHER SMITH, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND JAMES A. PEVEY, OF SAME PLACE.

Letters Patent No. 104,368, *dated June* 14, 1870.

IMPROVEMENT IN LOG-MEASURING SCALE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LUTHER SMITH, of Lowell, in the county of Middlesex, and State of Massachusetts, have invented new and useful Improvements in a Device for Measuring Logs; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing a beam, suitably lined, figured, and dotted, with a fixed and movable jaw or arm, the movable jaw, figured as desired, and moving or sliding on suitable tongues, which are secured to the beam, the object of this invention being to provide and furnish an instrument that can be operated and kept in order easily, and one that will indicate at sight, to the user, the measurement or contents of logs, in cubic feet, of any size or length.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 represents a side elevation of my improved device for measuring logs.

Figure 2 represents an elevation of the opposite side.

Figure 3 represents an end elevation of the same.

Similar letters in the different figures indicate corresponding parts.

a represents the beam, which I make in various lengths and widths.

To one end of this beam *a* is secured the fixed arm or jaw *b*, with its stop *c* and duck-bill point *d*.

e e are tongues, located on each side of the beam *a*, extending from the fixed jaw *b* to the end of the beam *a*, where they are secured to the same by means of the cap *f*. These tongues *e e* are also divided into inches and figured, which will indicate to the user, when required, the diameter of the log.

Sliding on these tongues *e e* is the adjustable slide *g*, to which is secured the arm or jaw *h*, with its duck-bill point *i*. This adjustable slide *g* is spaced, lined, and figured into the required number of parts, these figures indicating the different lengths of logs in feet.

I prefer the adjustable slide *g* figured as shown in the drawings, the figures indicating from twenty to forty-three feet, as this compass will include the lengths of most logs, although the same results would be obtained if otherwise figured.

The beam *a* is spaced and lined the entire length on all its sides, the number of spaces corresponding with the number of spaces on the adjustable slide *g*, and coming directly in under the same.

These spaces are divided and subdivided, and figured as desired, each figure indicating the number of cubic feet contained in the log, this amount being determined by the length and diameter of the same.

In dividing these spaces to the extent of the beam *a* from the fixed jaw *b*, the distance from one division to another grows less than the one that preceded it to such an extent that it renders it impossible to figure the same. Thus each division on the beam *a* indicates cubic feet.

As shown in figs. 1 and 2, a log 22 feet long and 4¾ inches diameter contains two cubic feet of timber. A log to contain three cubic feet, the same length, the diameter has to be increased 1¼ inch, making the diameter 6 inches. A long to contain four cubic feet, using the same length, the diameter is increased $\frac{5}{16}$, making the diameter $6\frac{5}{16}$ inches, A log of the same length to contain five cubic feet, the diameter has to be increased $\frac{3}{16}$, making the diameter 7¾ inches. A log to contain six cubic feet, the diameter has to be increased ¾ inch, making it 8½ inches diameter, using the same length. A log to contain 7 cubic feet, the same length, the diameter is increased ⅝ inch, making the diameter 9⅛ inches. A log to contain eight cubic feet, the same length, the diameter is increased $\frac{9}{16}$, making the diameter $9\frac{11}{16}$ inches.

Thus, it will be seen, the larger the diameter of the log, the closer the divisions come together.

To obviate this serious difficulty, I substitute dots, which have the same meaning and indicate cubic feet the same as the figures. Thus by having these divisions figured and dotted on the beam *a*, it supercedes the imperfect devices now in common use, as these divisions are not figured or dotted, but left-blank, and the user is obliged to guess at the amount.

The instrument being thus prepared and put together, it is then ready for use. The log being spotted, which is to remove the bark from the two sides opposite each other of the log, the operator takes the instrument in hand, places the bill-point *d* of the fixed arm *b* against the place previously spotted on one side of the log, and adjusts the duck-bill *i* of the arm *h* against the other side by means of the adjustable slide *g*, which is guided and slides on the tongues *e e*.

The operator then finds the length of the log, which had previously been obtained, and indicated by figures on the adjustable slide *g*. The figure on the beam *a*, opposite the figure on the slide *g*, which indicates the length, gives the required information in cubic feet, thus: We suppose the length of the log to be 43 feet, indicated on the adjustable slide *g*; we then suppose the diameter of the log, sufficient to stop the adjustable slide *g*, so as to leave the figure 43 opposite the figure 9 on the beam *a*. This accurately discloses the the solid contents or cubic feet in a log of 43 feet in length, and its diameter equal to the distance between the two duck-bill points *d* and *i*, amounting to nine cubic feet; also, if the diameter of the log is required,

this instrument is applicable to finding the same by means of the tongues *e e* being divided into inches and figured.

Furthermore, in case the logs are not sufficiently spotted for accurate measurement, these duck-bill points *d* and *i*, their form being admirably adapted to the removing any and all portions which have been carelessly left.

The adjustable slide *g*, moving on the tongues *e e*, by this arrangement the slide *g* is kept perfectly clear from the beam *a*, thus preventing the lines, figures, and dots on the beam *a* from becoming obliterated or defaced in the least, this sliding arrangement working with more accuracy, damp or wet weather not affecting it in the least.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the graduated slide *g*, having the caliper-arm *h*, with the log-rule *a*, provided with the fixed caliper-arm *b*, constructed and arranged substantially as and for the purpose herein specified.

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Witnesses:

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