E. S. Prime.

Gauge Rod.

No. 101,309. Patented Mar. 29, 1870.

Fig: 1.

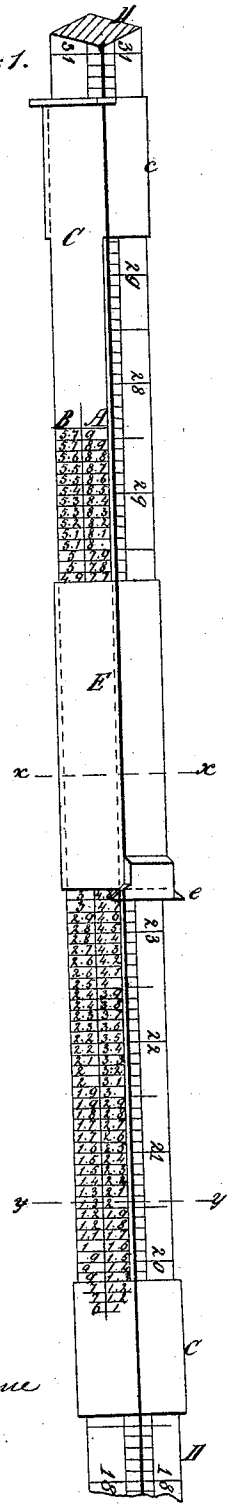

Fig: 2.

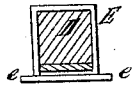

Fig: 3.

Witnesses
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United States Patent Office.

ELI S. PRIME, OF BALTIMORE, MARYLAND.

Letters Patent No. 101,309, *dated March* 29, 1870.

IMPROVEMENT IN GAUGE-RODS.

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, ELI S. PRIME, of the city and county of Baltimore, and State of Maryland, have invented a new and Improved Gauging Instrument; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view of rod and slides.

Figure 2, transverse section in line *x x*, fig. 1.

Figure 3, transverse section in line *y y*, fig. 1.

This invention consists in the combination of a gauge-rod, a "variety"-scale, and a bung-slide, in such a manner as to enable the operator to accurately ascertain the contents of a cask without performing any mental computation.

The under or "variety"-scale C is about fifteen inches in length, having a band, *c*, at each end, the lower band made to fit the rod D just loose enough to allow the slide to work on the rod with ease. The upper band is sufficiently large to admit a spring to keep it in proper position.

This scale C is laid off in two divisions, designated, respectively, A and B, and has, also, numerous lines cut across the face, at a distance of one-tenth of an inch apart, which work in exact harmony with similar lines on the rod.

On the face of this slide is arranged what is known to gaugers as the first, second, or third variety-scale, (the drawing shows the calculations for the "second variety,") with the numerals cut in figures instead of the usual marks.

The "over" or bung-slide E is similar to the slide now in common use, and is made large enough to work over the scale-slide without danger of moving it from any given point at which it may be set on the rod.

The instrument is worked as follows:

The point of the rod D is placed on the outside of the head and against the projecting end of the staves, diametrically across. The lower end of the scale-slide C is set at the greatest diameter of the head.

The rod is then inserted in the barrel, and the bung-diameter is obtained by drawing the over-slide E up until the jut *e* strikes the under side of the bung-stave at its greatest distance from the bottom of the barrel.

The rod is then drawn from the barrel, and at the lower end of the over-slide E, on the A side of the scale C, will be found the difference between the head and bung. On the B side will be found the proper amount to add to the head for the mean diameter.

We then look for this number on A, just opposite which number, on D, will be found registered the mean diameter of the barrel.

Example.

Suppose the dimensions of a barrel to be as follows:

	Inches.
Bung diameter	23.4
Head diameter	18.6
Difference between head and bung	4.8
Multiply the difference, 4.8 by .64, which gives for mean	3.0
Add the head	18.6
Mean diameter of barrel	21.6

We set the bottom of the scale-slide C at eighteen and six-tenths on the rod D, and the bottom of the over-slide E at twenty-three and four-tenths on D, when, at the bottom of over-slide on A, will be found four and eight-tenths, and on same line on B will be found three. We then look for three on A, when just opposite, on D, will be found twenty-one and six-tenths, the mean diameter, in figures and fractional marks.

The great advantage of this scale will be readily seen and appreciated by all who have gauged by the Caliper system, from the fact that it supersedes the necessity of putting the dimensions of the head and bung down on the barrel in chalk or pencil-marks, and, further, it does away with all mental calculations in gauging.

All experienced gaugers know that the point at which most errors occur in gauging is in finding the mean diameter by mental calculations. This instrument avoids all possibility of error in this respect by showing—

First, the head diameter;

Second, the bung-diameter;

Third, the difference between head and bung diameters;

Fourth, the amount to be added to the head; and

Fifth, it adds this difference to the head, and shows the mean diameter in plain figures, a result which is not obtained by any other instrument within my knowledge.

The rod D is provided with two scales showing inches and fractional parts of inches, which scales are on adjacent sides of the rod instead of being on opposite sides as heretofore.

The reason of this change is that the operator may find the head-diameter on the first scale of D by the use of the slide C, and may then find the bung-diameter on the second scale of D by the use of the slide

E without changing the position of the former slide, and that the tenths of inches on the second scale of D may correspond with the tenths of inches on the slide C, and enable the slide E, resting on the ascertained mark of the second scale of D, to indicate the proper figures on the slide C, and also enable the proper figure of the slide C to indicate the mean diameter on the second scale of D, all as hereinbefore described.

Having thus described my invention,

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

The combination, with a gauge-rod, of an under or difference sliding scale, C, and an over or bung-slide, E, in the manner and for the purpose specified.

ELI S. PRIME.

Witnesses:
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