J. RICHARDS.

Caliper Gage.

No 69,953. Patented Oct 15, 1867.

Fig. 1.

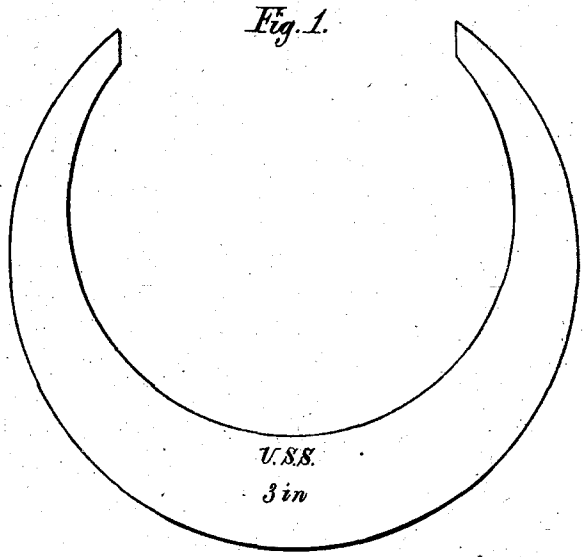


Fig. 3.

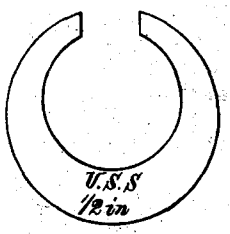


Fig. 4.

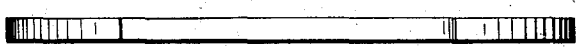
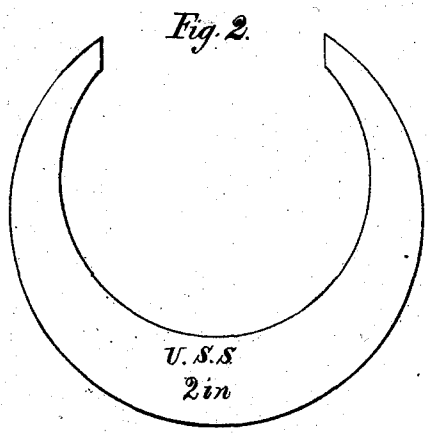


Fig. 2.



Witnesses;

H. R. Hyde

W. C. Hard

Inventor;

John Richards

United States Patent Office.

JOHN RICHARDS, OF CINCINNATI, OHIO.

Letters Patent No. 69,953, *dated October* 15, 1867.

IMPROVEMENT IN FIXED CALIPER GAUGES.

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, JOHN RICHARDS, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented a new and improved Form for Fixed Caliper Gauges; and I hereby declare the following to be a full and exact description of the same, reference being had to the drawings accompanying and forming a part of this specification, in which—

Figure 1 is a side view of a three-inch gauge.

Figures 2 and 3, similar views of two-and-a-half-inch gauges of the same form; and

Figure 4 an edge view of fig. 1.

The nature of this invention consists in constructing fixed caliper gauges with their concave and convex edges representing arcs of a true circle, so that the gauge can be cut from a sheet of metal, or turned and finished by the use of ordinary metal-cutting machines, with rotary movement, thereby cheapening and simplifying their construction, as hereinafter explained.

By the use only of standard gauges can system and uniformity be attained in the construction of machinery. Adjustable tools for taking dimensions require to be set to some standard when used, and the mechanism for their adjustment generally destroys their stiffness and makes them unreliable for accurate measurement. The fixed or solid caliper gauge, here illustrated and described, is intended for general shop use, and the peculiar form of its construction is such that can be readily and cheaply made upon machines in common use, while its form is such as to fill the necessary conditions of stiffness and convenience for use.

To enable others skilled in the art to make and use my invention, I will describe the manner and form of constructing the same.

I am aware that fixed gauges, of analogous construction, have been commonly known and used, with the difference of having such forms in their outline that they were tedious and expensive to make, and could not be so produced for general use.

In constructing the gauges in the form here shown, when their outline is two incomplete circles, eccentric to each other, the piece is cut from a sheet of metal with revolving tools, having an adjustment from the centre to suit the different circles, or the plate can be chucked in a common lathe, and the gauge cut out, as will be readily understood. By either of these modes the edges are formed true and require but little finishing, while the outline being a true sweep presents a symmetrical appearance. The gauges can also be punched from the sheet, while their peculiar form admits of their being ground or otherwise finished by rotation, as before mentioned. The points are hardened to prevent wear, and carefully adjusted to standard sizes, the fit to extend the whole depth of the parallel faces at *a*, as shown.

Having thus described the nature of my invention, what I regard as new, and desire to secure by Letters Patent, is—

A fixed caliper gauge, when constructed as herein specified, the outline being arcs of true circles, substantially as described.

JOHN RICHARDS.

Witnesses:

W. S. KELLEY

W. R. HYDE.