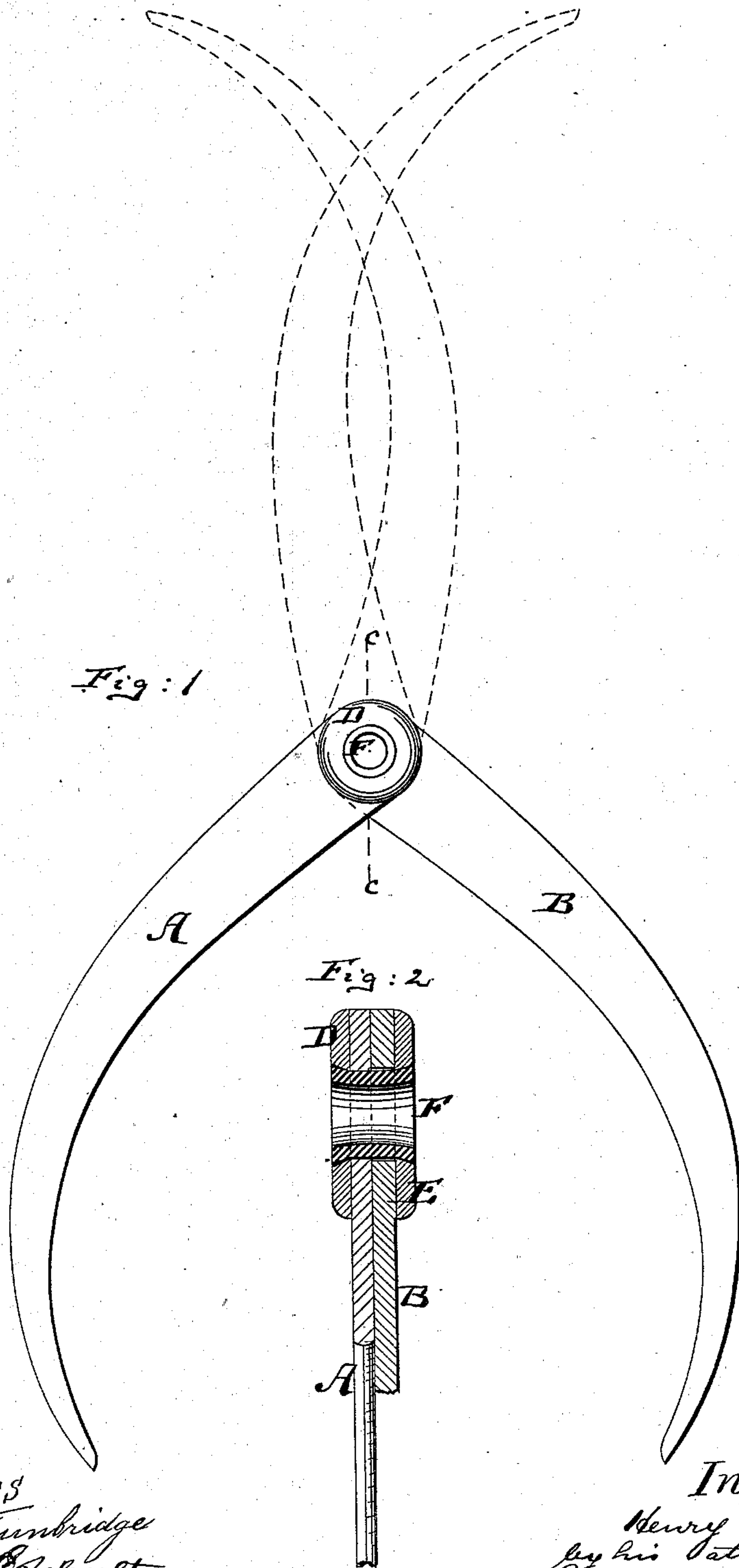


(No Model.)

H. FOERSTER.  
CALIPERS.

No. 258,225.

Patented May 23, 1882.



Witnesses  
John C. Turnbridge  
Wm. L. Schultz.

Inventor:  
Henry Foerster  
by his Attorneys  
Briesen & Betts.

# UNITED STATES PATENT OFFICE.

HENRY FOERSTER, OF NEWARK, NEW JERSEY.

## CALIPERS.

SPECIFICATION forming part of Letters Patent No. 258,225, dated May 23, 1882.

Application filed July 2, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY FOERSTER, of Newark, in the county of Essex and State of New Jersey, have invented an Improvement in Calipers, Dividers, &c., of which the following is a specification.

Figure 1 is a front view of my improved calipers. Fig. 2 is a central section on the line c c, Fig. 1, on an enlarged scale.

10 The object of this invention is to improve the character of the pivot in calipers, dividers, &c. Heretofore such pivot was a solid pin riveted or headed at both ends. Whenever a solid pin is thus used it will in the act of riveting be  
15 caused to bulge outward more or less and cease to be straight, its longitudinal section obtaining convex surfaces within the body of the calipers. This disfigurement of the pin produced by the act of riveting injures the calipers, in that it prevents the jaws from moving  
20 with the requisite degree of freedom. Hence in applying the calipers to use they will have to be jerked into position to match a shaft or other thing to be measured, whereas they should  
25 be gently moved from one position to another. The jerking action interferes greatly with the necessary exactness and nicety of measurement. It follows that in a good pair of calipers it is essential to have the jaws move on their  
30 pivots with ease, and yet to prevent them from working too loose on each other. To this end I have substituted for the solid pivotal pin one which is hollow, and which is of softer material than the material of the jaws of the calipers.  
35 This enables me to keep the outer sides of the hollow pivot always straight. Whatever bulging occurs during the riveting process is inward.

40 In the accompanying drawings, the letters A and B are the two jaws of a pair of calipers. These jaws are of the usual form and construction.

D and E are the washers, placed against the upper ends of the jaws where they meet.

F is the pivot. The jaws of the calipers are 45 always, or nearly always, made of iron or steel, and I make the pivot F of a softer metal than the jaws, preferring brass or copper whenever the jaws are of iron or steel; but whatever the material of the jaws the pivot should be of a 50 softer metal than they, so that the resistance of the harder metal will prevent the outward bulging of the softer metal during the act of riveting. The pivot F is made hollow, as clearly shown, and is placed through the superposed 55 jaws and countersunk washers in the manner in which pivots are usually placed, and is then headed or riveted into position by spreading its ends. During the act of riveting the metal of the pivot, being compressed longitudinally, 60 has a tendency to bulge outward if the pin be solid, and has on a solid pin no other outlet for the longitudinal compression than the outward bulge; but the tubular pin F, when hammered endwise in the jaws of harder metal, instead of bulging outward, will be caused to 65 bulge inward by such hammering, as indicated in Fig. 2, when hammered in riveting, and retain the straight and cylindrical form on the outer side where the jaws of the calipers surround it. 70

My invention is not only applicable to calipers, but also to dividers and analogous instruments.

I am well aware that it is not new to use 75 eyelets as means of uniting different parts of mechanism, and that tubular eyelets have been used in fans, dividers, and analogous structures. This I do not claim.

What I do claim is—

80 The caliper-jaws A B, combined with the tubular pivot F and countersunk washers D E, the ends of said pivot being spread substantially as herein shown and described.

HENRY FOERSTER.

Witnesses:

A. V. BRIESEN,  
HARRY M. TURK.