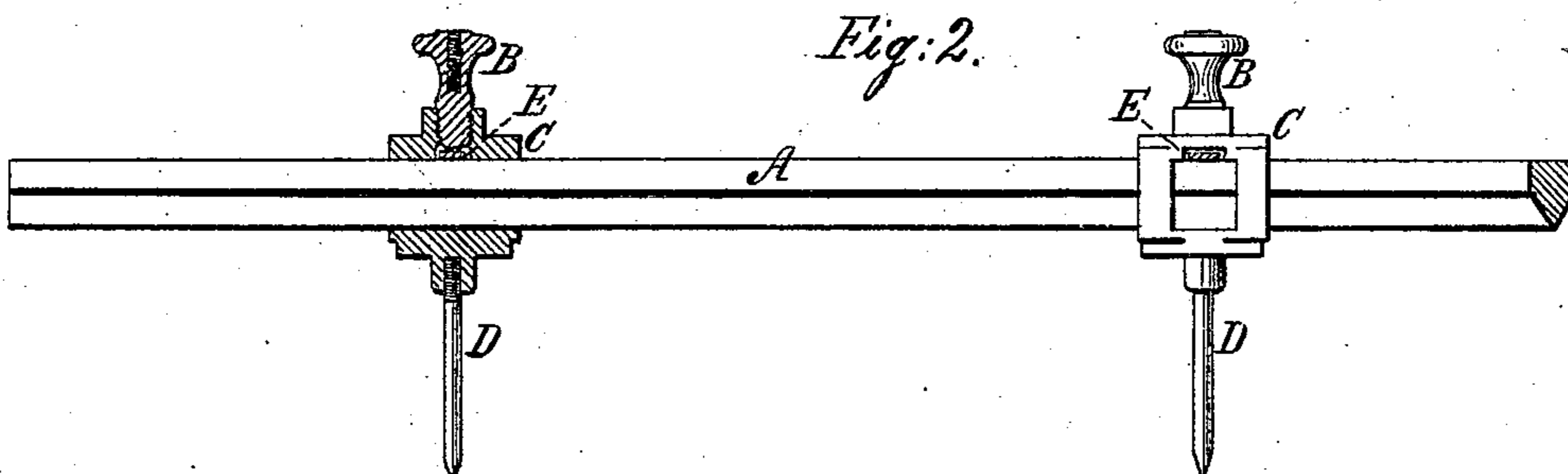
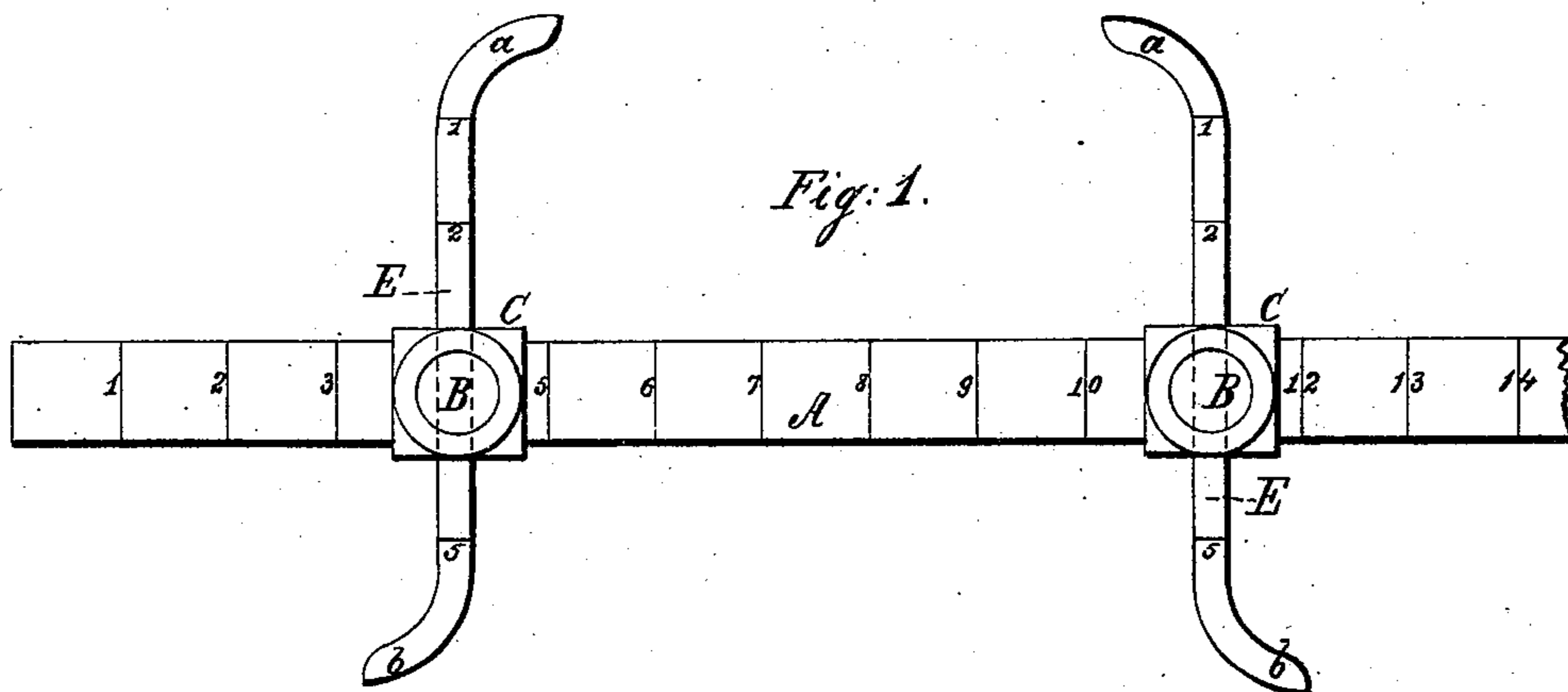


W. BURROWS.
Calipers, Gage and Trammel.

No. 85,430.

Patented Dec. 29, 1868.



Witnesses;
A. LeClere
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United States Patent Office.

WILLIAM BURROWS, OF NEW YORK, N. Y.

Letters Patent No. 85,430, dated December 29, 1868.

IMPROVEMENT IN COMBINED BEAM-COMPASS AND CALIPERS.

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, WILLIAM BURROWS, of the city, county, and State of New York, have invented a new and useful Combined Calipers, Gauge, and Trammel, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a plan of my combined calipers, gauge, and trammel; and

Figure 2, a partly sectional side view of the same.

Similar letters of reference indicate corresponding parts.

The object of this, my invention, is the production in the one device, or as combined with a common stock, of instruments of different character or use, though suitable for operation in connection, or consecutively, in carpentry, joiners' and other work.

My invention consists, first, in a combination, in the one instrument, of a calipers, gauge, and trammel, operating without removal, or absolutely necessary removal, of the parts or devices requisite to establish the function of either tool.

Referring to the accompanying drawing—

A represents the straight stock or bar of the combined instrument. This stock may be of any desired length, and preferably, or mainly so, of a V-shape in its transverse section.

Fitting said bar, so as to be capable, either one or both of them, of an easy but close sliding action on or along said bar, so that they may be set at any desired distance apart, and held in such position by set-screws, B, are heads, C, which serve to carry the trams or trammel-legs D, that may be screwed into said heads, so as to be readily removable therefrom.

If desired, also, the set-screws B may have a screw-thread cut in them, to receive the trams or trammel-legs D, for the purpose of working or using the legs from opposite faces of the bar.

So far as described, the instrument simply acts as a trammel or gauge, with one or both legs adjustable.

To give the instrument its caliper-function, or action, I provide the heads C with caliper-blades or arms, E, running through said heads transversely to and over the bar A, and held in position on said bar by the set-screws B. Thus arranged, it will be seen that the caliper-

blades or arms, in being adjusted to and from each other, always occupy the same parallel relationship, and thus secure the same extent of blade or arm-projection, whether the distance to which the blades or arms are spread apart, or away from each other, be small or great.

These blades or arms E may, by slacking the screws B, be slid in or out through the heads C, to give more or less projection to said blades relatively to the stock, and are preferably bent in reverse directions, as at *a a* and *b b*, to adapt them to measuring both inside and outside work, the bent portions *a a* serving to measure bodies on the outside, while the bent portions *b b* answer to measure inside work, the stock or bar A, or sides of the heads C, acting, in the performance of the latter work, as a straight-edge or guide on the end or outside of the body being measured, to keep the blades or arms from twisting, or projecting unequally within the cavity or space under measurement.

It is desirable that both the stock or bar A, and blades or arms E, should be divided, or marked into measured spaces on their upper faces, to facilitate the adjustment to fixed distances of the heads C carrying the trams D and arms E, or either; also to facilitate the projection to fixed distances of said arms or blades.

While the instrument may thus be made to perform its several functions of trammel, gauge, and calipers, without, of necessity, removing any parts or devices necessary to the performance of the functions of either tool, every facility is afforded, either by unscrewing the trams or legs D, or on sliding out of the heads C the blades E, for converting the instrument into simply a calipers, or exclusively a gauge or trammel.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination, in the one instrument, with a stock or bar A and heads C C, of the trams or legs D, and transversely-adjustable caliper-blades or arms E, arranged to operate, essentially as and for the purpose or purposes herein set forth.

WM. BURROWS.

Witnesses :

A. LE CLERC,
A. KINNIER.