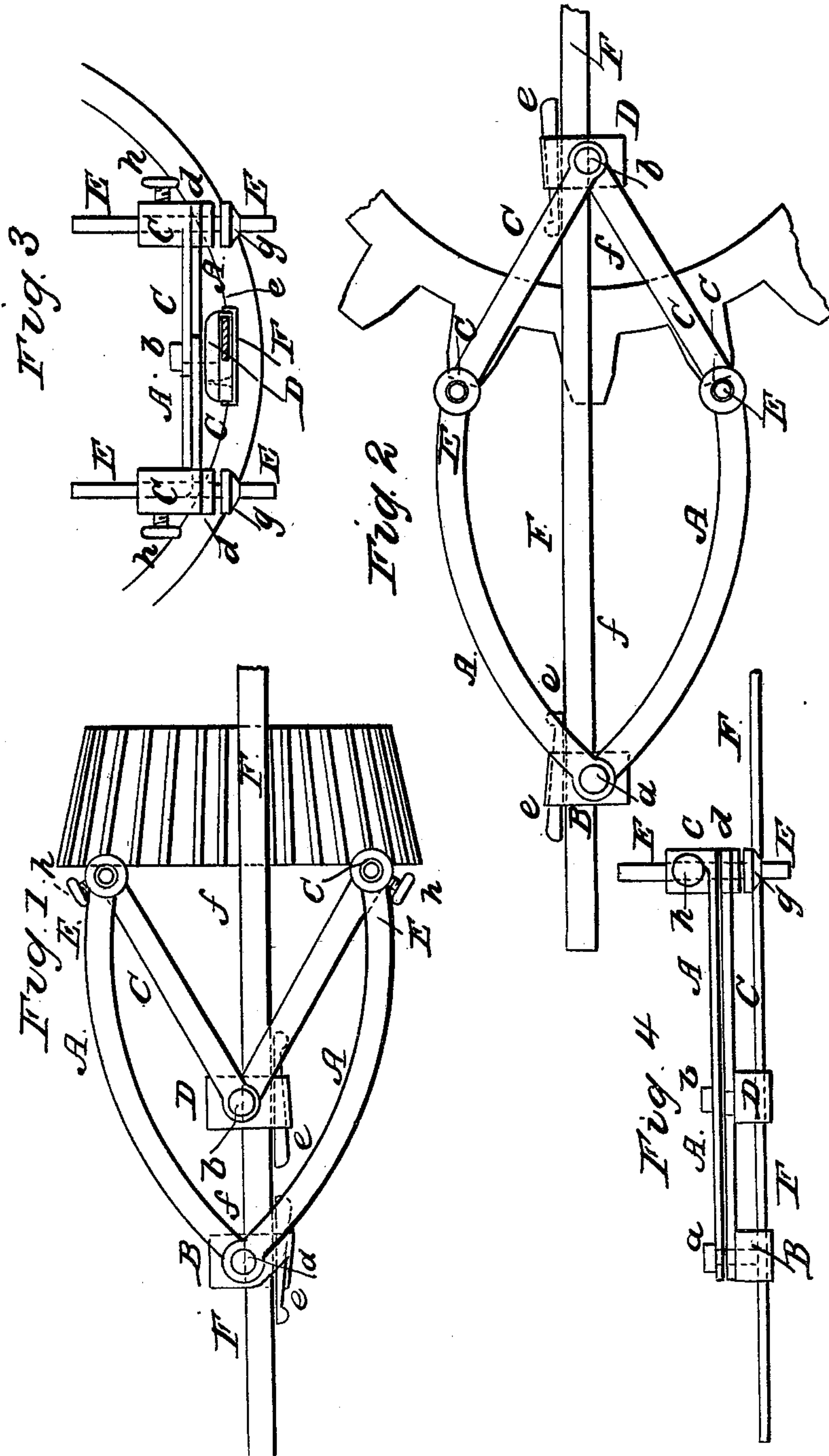


M. J. TROWBRIDGE.

Centre Square.

No. 91,385.

Patented June 15, 1869.



Witnesses
Chas. Nida
John A. Brooks

Inventor
M. J. Trowbridge
Per *M. J. Trowbridge*
Attorneys

United States Patent Office.

M. J. TROWBRIDGE, OF CAZENOVIA, NEW YORK.

Letters Patent No. 91,385, dated June 15, 1869.

IMPROVEMENT IN CENTRE-SQUARE.

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, M. J. TROWBRIDGE, of Cazenovia, in the county of Madison, and State of New York, have invented a new and improved Adjustable Centre-Square; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figures 1 and 2 are plan or top views of my improved adjustable centre-square, showing its parts in different positions.

Figure 3 is an end view of the same.

Figure 4 is a side view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new centre-square, which is to be used for laying out patterns for toothed wheels or for other purposes, and which is so arranged that its squaring-pins will be held steadily in any desired position.

The invention consists in the peculiar arrangement of the braces for holding the reversible tongue and the squaring-pins, all as hereinafter more fully described.

A A are two curved or straight bars, connected together by means of a pivot-pin, *a*, which serves, also, to retain a tongue-socket, B, under the bars, as shown.

C C are two other shorter bars, connected with each other by a pivot, *b*, which holds the second tongue-socket D.

The free ends of the bars A and C are connected by pivots E E, fitted through vertical sockets *c d* formed on the said bars, as shown in figs. 3 and 4.

F is the tongue. It is retained in the swivel-sockets B and D, and is fastened therein by means of wedges *e e*, or other equivalent devices.

The sockets B D are so formed that one edge *f* of the tongue will be held in line with the centres of the pivots *a b*, as shown in figs. 1 and 2.

When the tongue is taken out, the sockets B D can be swung so as to reverse the position of the centre line of the tongue, which, in fig. 1, is represented as the upper, and in fig. 2 as the lower edge of the

tongue, so that the same may be used right or left-handed, as may be desired.

The pins E E, together with their sockets *c d*, are the squaring-pins. They are always at equal distances from the centre-edge *f* of the tongue, however the arms A and C may be adjusted.

The sockets B D slide on the tongue, while the pins E E are set at greater or less distances apart.

The arms C can be swung into or between the longer arms A, in which case the sockets B D will be close together. This position, shown in fig. 1, is not as desirable as that shown in fig. 2, in which the arms C are thrown outward, whereby the squaring-pins are not only better braced, to be steady, but whereby, also, the sockets B D are thrown further apart, to afford a better support for the tongue.

The fig. 1 position is, however, necessary for some cases, as, for example, for laying out bevel-gearing, when the pins E are brought against the face of the wheel, so that the line *f* of the tongue may indicate a centre line on the edge of the wheel.

The pins E have shoulders *g g* to rest on the rim of the wheel, as in fig. 4, and can be adjusted in the sockets *c d* by means of screws *h h*, to hold said shoulders higher or lower, as may be desired.

The fig. 2 position is convenient for plain toothed wheels, as shown. The tongue can, in this case, be used between the slides B D.

For internal gearing, the sockets *c d* will form the squaring-pins, to rest against the annular face of the wheel, as shown in fig. 3.

Having thus described my invention,

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

A centre-square, consisting of the jointed arms A A C C, of the reversible swivel sockets B D, which hold and slide on the tongue F, and of the squaring-pins E, arranged in the sockets *c d* of the arms, all arranged and operating substantially as herein shown and described.

M. J. TROWBRIDGE.

Witnesses:

J. W. HOWSON,
W. S. HOWSON.