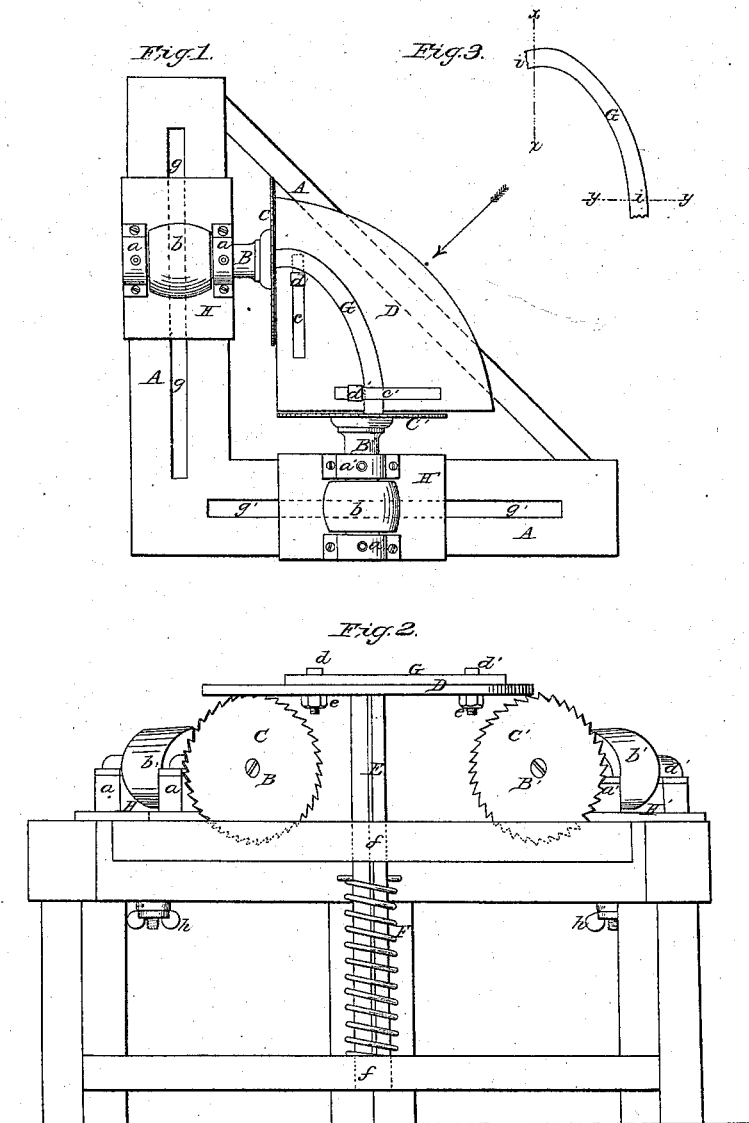


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*N<sup>o</sup> 54,890,*

*Patented May 22, 1866.*



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR JOINTING OVAL FRAMES.

Specification forming part of Letters Patent No. 54,890, dated May 22, 1866.

*To all whom it may concern:*

Be it known that I, DAVID GARRISON, of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Machinery for Jointing Sections of Ovals; 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, forming part of this specification, in which—

Figure 1 is a plan view of a machine constructed according to my invention. Fig. 2 is an elevation of the same, looking in the direction of the arrow shown in Fig. 1. Fig. 3 represents a plan view of one of the sections of an oval, illustrating the mode of jointing it by my improved machinery.

Similar letters of reference indicate corresponding parts in the several figures.

My invention is more especially applicable to the manufacture of oval frames of wood.

Its object is to cut the joints of sections of ovals or ellipses in such manner that when several sections are put together they will form a true ellipse.

The sections are first cut out by any suitable means in the proper curved form, but somewhat larger than is necessary to form the desired section of the ellipse, as represented in Fig. 3 of the drawings, and the two ends *i i* are then cut off at a proper angle with each other by my invention, as indicated by the lines *x* and *y* in that figure, to form the joints.

The invention consists in the employment of two saws arranged so that their cutting-planes are at the proper angle to each other, and a table the face of which is perpendicular to said cutting-planes and which has a movement parallel with said planes, and upon which the sections are laid in contact with suitable adjustable guides or stops, and thereby enabled to be presented in a proper manner to the action of the saws.

My invention admits of considerable variation in the arrangement of its details; but to enable others skilled in the art to make and use it, I will proceed to describe it in its simplest form with reference to the drawings.

A is a horizontal frame, on the top of which are arranged the bearings *a a a' a'*, for the reception of the journals of the rotary spindles B B' of the two circular saws C C', the axes

of the said spindles being arranged in the same plane and at right angles to each other, and being furnished with pulleys *b b'*, for the reception of driving-bands for producing the rotary motion of the saws.

D is a horizontal quadrant-shaped table attached securely to an upright pillar, E, of square or such other form that it may slide up and down freely, without turning, in right guides *f f*, constructed in or secured to the frame A. To this table, or its pillar E, there is applied a spring, F, or a weighted cord running over pulleys, for the purpose of raising the said table up above the saws, as shown in Fig. 2. The two straight edges of this table are parallel with the planes of revolution of and nearly close to the saws.

Above the top of the table D there projects two adjustable stops or guides, *d d'*, against which the quarter-sections G of the oval are placed and held by hand while being jointed by the saws, the said guides being so arranged that when the inner edges of the sections G are in contact with them the point of intersection of the major and minor axes of their ellipse will be situated at the point of intersection of the planes of revolution of those faces of the two saws which are nearest each other.

The stops *d d'* are adjustable for the sections of ovals of different sizes and forms, and for this purpose are fitted to two slots, *e e'*, in the table D, the said slots being parallel with the two saws—one with one saw, and one with the other. The said stops are furnished with screws and nuts *e e'*, Fig. 2, by which they are secured firmly in place when properly adjusted.

The sole-plates H H' of the saw-spindle bearings *a a* and *a' a'* are so secured by the frame A, by bolts and nuts *h h'*, Fig. 2, as to be capable of adjustment in directions parallel with the planes of revolution of their respective saws, such adjustment being provided for by slots *g g'* in the frame A, through which the said bolts pass.

The operation of the machine is as follows: The sections G of the oval or ellipse having been cut by any suitable means to the proper curved form, according to the size and relative length of the major and minor axes of the oval or ellipse to be produced, but somewhat longer than is necessary, are placed, one or more at a time, upon the table D and against the stops or guides *d d'*, as shown in Fig. 1,

while the table D is elevated above the saws. When the section or sections have been so placed they may be held in position by the hand of the operator or by any other means, while the table D is depressed by hand or any suitable means, rotary motion being in the meantime given to the two saws, which are thereby caused to cut off the portions *ii* of the extremities which project beyond the planes of revolution of the inner faces of the saws, leaving the said extremities square with each other, and making each section an exact quarter of an ellipse, terminating at one end in the major axis and at the other end in the minor axis of the ellipse. When the extremities have been thus cut off the pressure is removed from the table C, which is then raised by the spring F or its equivalent. The section or sections are then removed, and the machine is ready for a repetition of the operation.

Any four of the sections which have thus had their ends cut off or jointed will, when their jointed ends are put together, form a true oval or ellipse.

It is obvious that the sections of ovals or ellipses may be cut by a machine of the same character as is herein described in such manner as to make the joints come in other positions than in the major and minor axes; but in such case the sections would require to be of at least two different forms, and that two

different arrangements of the stops or guides *d d'* would require to be used, owing to the sections requiring to be of at least two different forms.

It is also obvious that such a machine may be used for jointing sections of ovals or ellipses when more than four sections are used to form the oval or ellipses; but this would not only require different arrangements of the stops or guides *d d'*, but the angle formed by the planes of revolution of the two saws would have to be varied. It will therefore be seen, as I have hereinbefore stated, the machine represented in the drawings illustrates my invention in its simplest form, and that the invention admits of considerable variation in its details.

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

The combination of two saws the cutting-planes of which are at an angle to each other, a table having a movement parallel with the cutting-planes of the two saws, and a set of adjustable stops or guides arranged upon the said table in relation to each other and to the saws, substantially as and for the purpose herein specified.

DAVID GARRISON.

Witnesses:

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