

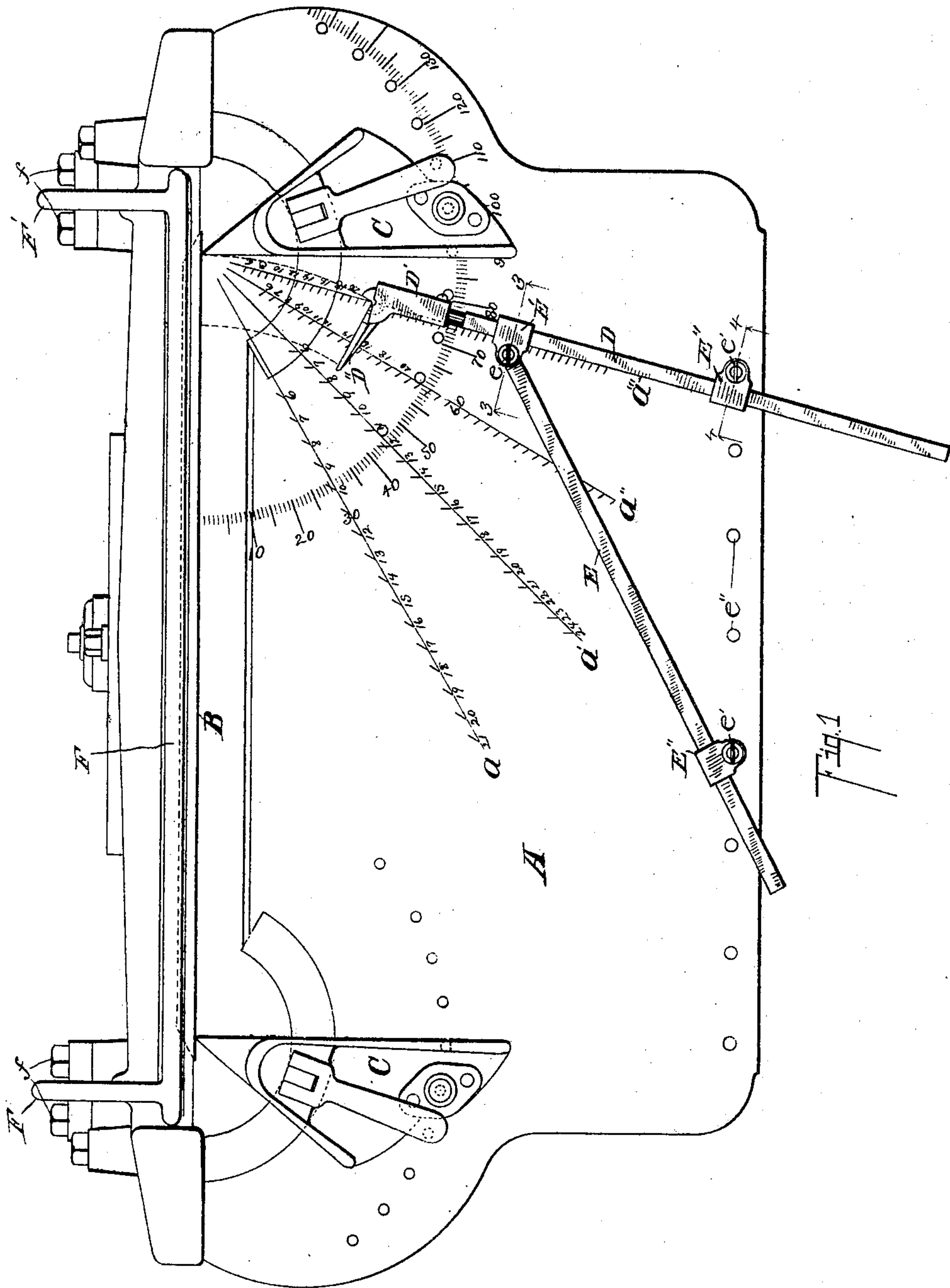
No. 865,692.

PATENTED SEPT, 10, 1907.

W. R. FOX & M. LUND.
ANGLE GAGE FOR MITERING MACHINES.

APPLICATION FILED JAN. 19, 1907.

2 SHEETS—SHEET 1.



Witnesses:

A. F. Adams
Lulu Greenfield

Inventors

William R. Fox *Matthew Lund*
By *Chapman & Co.*
Att'ys

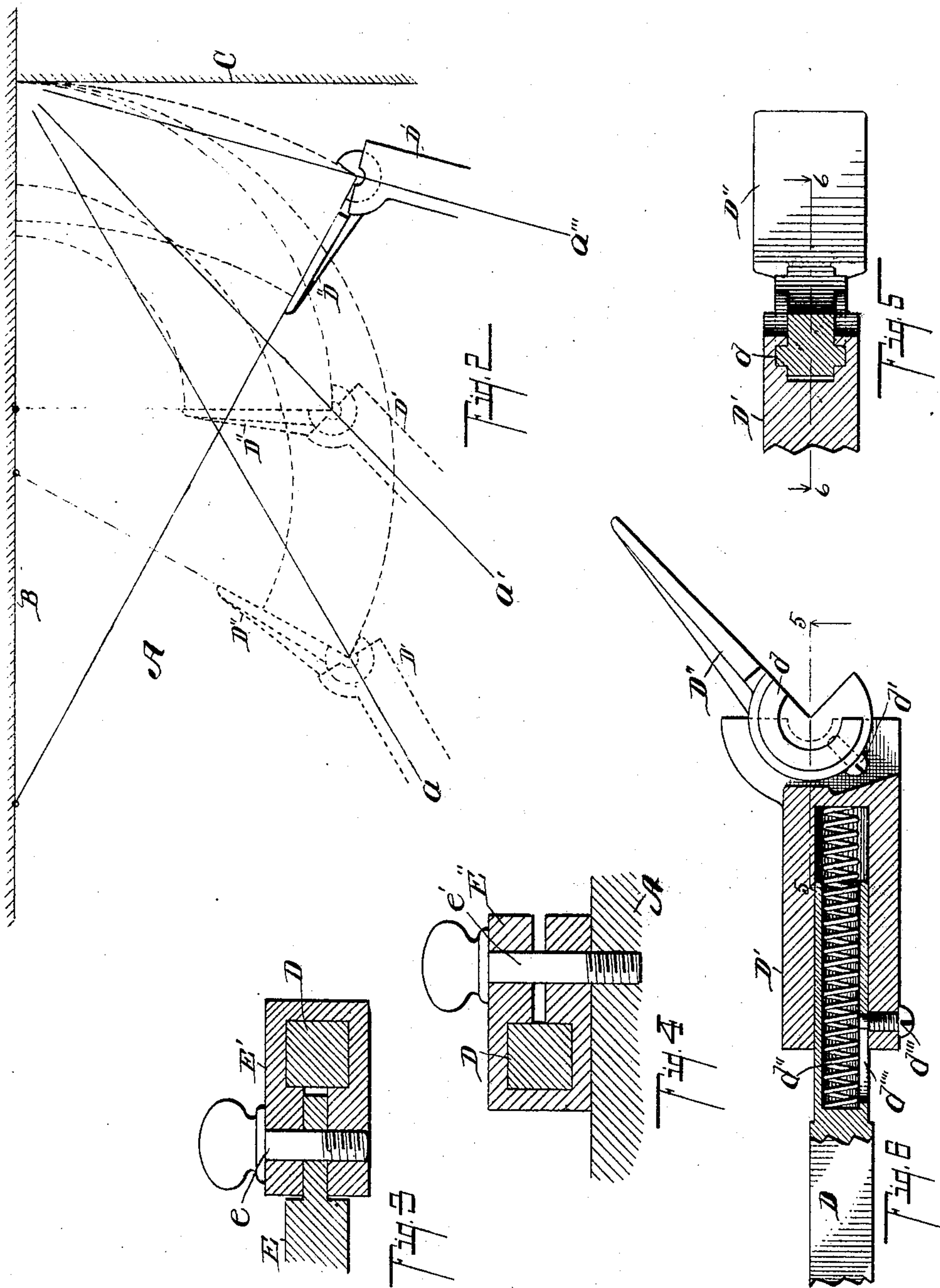
No. 865,692.

PATENTED SEPT. 10, 1907.

W. R. FOX & M. LUND.
ANGLE GAGE FOR MITERING MACHINES.

APPLICATION FILED JAN. 19, 1907.

2 SHEETS—SHEET 2.



Witnesses:

A. F. Adams.

Lulu Greenfield

Inventor,

William R. Fox & Matthias Lund

By *Chapell & Earl*
Att'ys

UNITED STATES PATENT OFFICE.

WILLIAM R. FOX AND MATTHEW LUND, OF GRAND RAPIDS, MICHIGAN, ASSIGNORS TO FOX TYPEWRITER COMPANY, OF GRAND RAPIDS, MICHIGAN.

ANGLE-GAGE FOR MITERING-MACHINES.

No. 865,692.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed January 19, 1907. Serial No. 353,137.

To all whom it may concern:

Be it known that we, WILLIAM R. FOX and MATTHEW LUND, citizens of the United States, residing at Grand Rapids, county of Kent, State of Michigan, have invented certain new and useful Improvements in Angle-Gages for Mitering-Machines, of which the following is a specification.

This invention relates to new and useful improvements in saw tables or tables for mitering machines, and attachments therefor.

The objects of this invention are to provide an improved construction of table and attachments by means of which it will be possible to readily adjust guides for cutting segments of various lengths for various diameters of circles, which is a matter of importance to patternmakers generally. It is also often desirable to provide portions of a circle.

Objects relating to details of construction will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawing forming a part of this specification, in which:

Figure 1 is a plan view of an improved Fox mitering machine, provided with one of my improved tables and attachments; Fig. 2 is a diagrammatic view showing some of the different adjustments of the attachment on the table; Fig. 3 is an enlarged detail sectional view taken on a line corresponding to line 3—3 of Fig. 1, showing one of the adjusting clamps E' ; Fig. 4 is an enlarged detail transverse sectional view on line 4—4 of Fig. 1, through one of the gage bar clamping means E'' for securing the bar to the table; Fig. 5 is an enlarged detail sectional view of the pivoted and yieldingly adjustable gages D' D'' , taken on a line corresponding to line 5—5 of Fig. 6; and Fig. 6 is an enlarged detail sectional view of the same parts, showing details of construction, taken on a line corresponding to line 6—6 of Fig. 5.

In the drawing, similar letters of reference refer to similar parts throughout the several views, and all of the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

In pattern-making, it is often desired to form circles or arcs of circles of wood or similar material. To cut segments or equal parts of a circle with neatness and despatch is very desirable.

With my improved table and adjustable gage I can very readily set the same for segments of circles, put the segments in position, and trim them to exactly the right dimensions to make up equal parts of circles in

various diameters, dividing the circles in this way into as many equal parts as is practical to use.

Referring to the lettered parts of the drawing, A is the table of an improved Fox trimmer embodying the features of my invention; B is the cutting-knife arranged to travel across the back edge of the table; and C C are the adjustable angle blocks, only one of which is made use of in conjunction with my present inventions. This angle-block is adjustable to different angles and is used in the ordinary way, when my special attachment is not in position. In use with my attachment, the angle guide that is employed is set at right angles to the cutting line of the knife, and the periphery of each segment rests against it in use. On the table I lay out a diagram of as many radial lines as it is desired to accommodate on the said table, the same appearing at a a' a'' a''' , which determine the number of segments that any circle will be divided into. These all radiate from the apex of the angle stop C. The line a is at the proper angle, viz., 30° , for forming these segments; line a' is at the proper angle for four segments, viz., 45° ; line a'' is at the proper angle for six segments, viz., 60° ; and line a''' is at the proper angle for twelve segments, viz., 75° . As many lines can be added at different angles as it is desired to provide for segment numbers. By exact measurement, the exact point on each of these lines which would be reached by a segment of circles; the particular diameter is indicated, these appearing as indicated in the drawing marked by figures on the line a from 6 to 21, showing the position taken by segments for circles of six inches to twenty-one inches in diameter.

My improved attachment consists of a straight bar D which is provided with a suitable clamp E'' for securing the same to the table so that its edge will exactly coincide with any of the lines selected. The clamp E'' is secured by a set screw e' at a predetermined point indicated by the screw-threaded holes appearing in the table A, as illustrated in Fig. 1. An exactly similar clamp E'' secured by a set screw e' inserted in one or another of the same holes is provided for the bar E, and clamps the same adjustably so that the bar D can be adjusted on exactly the line required. A brace arm E, also a clamp E' , is made use of in securing this bar D to the table with great rigidity, the bar E having a connection at e to the clamp E' to the bar D, thereby securing adjustment. A swinging part D'' is kept in its seat by the set screw d' . On the end of this bar is an adjustable sliding block D' which is held normally outward and yieldingly in position by a coiled spring d'' in a socket in the end of the bar D. The outward movement of this block D' is regulated by the set screw d''' extending into a slot d'''' in the side of the socket.

The swinging gage piece D'' is provided with a right

angled notch, the apex of which is in line with the edge of the guide bar D and is provided with circular supports having the axis of its rotation at the apex of the angle. This swinging guide D'' is left free to turn on its pivot. The pivoting is accomplished by the annular rib *d* engaging a corresponding groove in the block D'.

When it is desired, for instance, to form a circle of twelve segments twenty-two inches in diameter, the bar D is secured in the position indicated in Fig. 1 with the apex of the angle of the swinging gage D'' exactly on that point, indicated by the number twenty-two. The bar D is then rigidly secured in position. The face *a'''* of the bar D is placed upon and parallel with the radial line which indicates the angle that is to be cut. Segments of the circle cut somewhere near the proper dimension are then put in place, their peripheries fitting against the guide-block C, and they are crowded into the angle of the stop D'' and the yielding block D' is forced back upon the radial line of the angle indicated and the knife is operated. The segment is then reversed and a cut taken off from the other end. The piece is then put in the first position and thin cuts are taken off until the yielding gage has moved to the position to which it was first adjusted. The last cut should be a very light one, so that a smooth finish will be secured. When it is desired to produce a different number of segments of different diameters, the gage is adjusted on the different lines indicated in Fig. 1, or additional lines, and the same method is pursued, when segments of different lengths and different diameters will be readily produced, as clearly appears by the dotted lines in the diagrammatic view in Fig. 2.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a gage device, the combination of a table A with a straight cutting line at the rear and with radial lines thereon, radiating from the gage point at the rear edge of the table; a gage C arranged at right angles to the cutting edge of the table; an adjustable gage-bar D with a yielding block D' at the rear end; a pivoted gage portion D'' with right-angled faces, the apex of which is in the line of one edge of the gage bar D; clamp members E'' with set screws therethrough, engaging suitable holes in said table; a brace bar E secured with a suitable clamp E' to the gage bar D to the table by the clamp E'', whereby the gage D'' can be set with the apex at the proper point for forming segments and the segments can be yieldingly pressed against the same to gradually bring them to the proper dimensions by cutting from the segments at the cutting edge of the table, all co-acting substantially as described and for the purpose specified.

2. In a gage device, the combination of a cutting table A with means for trimming in a straight line along one side of the same; a gage arranged at right angles to the cutting-edge; radial lines radiating from the point of intersection of the right-angled gage on the cutting edge,

with suitable scales thereon for the different dimensions of circles; an adjustable detachable bar for arrangement on said radial lines; suitable means for clamping it in place; and a swinging gage with right-angled surfaces, the apex of which can be arranged on said radial lines, yieldingly supported on the front end of said bar co-acting substantially as described and for the purpose specified.

3. In a gage device, the combination of a cutting table with means for trimming in a straight line along one side of the same; a gage arranged at right angles to the cutting edge; radial lines radiating from the point of intersection of the right-angled gage on the cutting edge, with suitable scales thereon for the different dimensions of circles; an adjustable detachable bar for arrangement on said radial lines; suitable means for clamping it in place; and a swinging gage with right-angled surfaces, the apex of which can be arranged on said radial lines, supported on the front end of said bar, co-acting substantially as described and for the purpose specified.

4. In a gage device, the combination of a table A with suitable means for trimming in a straight line at one edge thereof; a gage at right angles thereto; a yielding stop with right-angled faces, with means for adjustably securing the same at predetermined points whereby the segments can be formed, as specified.

5. In a gage device, the combination of a table A with suitable means for trimming in a straight line at one edge thereof; a gage at right angles thereto; a yielding stop, with means for adjustably securing the same at predetermined points whereby the segments can be formed, as specified.

6. In a gage device, the combination of the bar D with a socket at the rear end; a yielding block D' adjustable in the end of said bar D and held normally outward by the spring *d''*; a set screw *d'''* adapted to engage a suitable slot *d''''* to limit the movement of said stop; and a swinging gage portion D'' having right-angled surfaces, supported on suitable grooved ways at the rear end of the block D', all co-acting substantially as described and for the purpose specified.

7. In a gage device, the combination of a bar D; suitable means for clamping the same to a cutting table; a brace bar E; a clamp E' embracing the bar D with a set screw *e''* for clamping the same thereto, said set screw forming a pivot for the brace bar E; and a clamp for clamping the brace bar to the table, co-acting for the purpose specified.

8. In a gage device the combination of the bar D with a socket at the rear end; a block D' adjustable in the end of said bar D and held normally outward by the spring *d''*; a set screw *d'''* adapted to engage a suitable slot *d''''* to limit the movement of said stop; and a swinging gage portion D'' having right-angled surfaces, supported on suitable grooved ways at the rear end of said block D', all co-acting substantially as described and for the purpose specified.

In witness whereof, we have hereunto set our hands and seals in the presence of two witnesses.

WILLIAM R. FOX. [L. S.]
MATTHEW LUND. [L. S.]

Witnesses:

J. DE Vlieg,
Jos. B. Ware.